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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ANNUAL REPORT

FISCAL YEAR

1985

JAMES GUTENSOHN
COMMISSIONER

INTRODUCTION

DEM is an energetic agency with a wide range of responsibilities -- preservation as well as development, management as well as conservation, and stewardship of the Commonwealth's natural resources in cities as well as in rural areas.

In developing programs to meet these responsibilities, DEM is guided by three major goals:

1. Increase the public's appreciation and care for the Commonwealth's natural and cultural resources, and for the Department as the steward of these resources.

2. Demonstrate the interdependence between economic and environmental policies and actions in ensuring a high quality of life for the citizens of the Commonwealth.

3. Provide resources and streamline operations to enhance the Department's ability to professionally manage the resources, properties, and programs under its jurisdiction.

Drawing on the $162 million open space bond funding approved by the Legislature, in 1985 DEM increased the size of Massachusetts' state forest and park system to 280,000 acres -- sixth largest in the nation. Other DEM initiatives this past year aim to rejuvinate rivers and harbors, city and town commons, Heritage State Park cities, and Olmsted Parks throughout the state.

In its responsibilities with respect to solid and hazardous waste management, the Department completed a thorough analysis of the Commonwealth's solid waste problems and provided the background and framework for development of the Governor's plan to meet the crisis of solid waste management in cities and towns. Our hazardous waste efforts continued to build public participation programs throughout the state, identify appropriate means for specific industries to reduce the amount of hazardous waste produced at their source of generation, and improved the siting process through greater public involvement, implementation of strigent criteria for developer and site recommendations and the generation of better information.

We are proud to play an active role in enhancing the quality of life for all citizens across the state by providing sensitive, thoughtful management of the many properties of which DEM is steward and by assisting municipalities in efforts to enhance the physical environment.

James Gutensohn

James Gutensohn
Commissioner

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ROBERT E. FREEDMAN, CHIEF

The following secretaries also provided valuable typing assistance in the preparation of this Annual Report:

LYNNE E. WORRELL - BUREAU OF RECREATION
ROSE M. DISABATINO - BUREAU OF FOREST DEVELOPMENT
MARY ELLEN YETMAN - BUREAU OF FIRE CONTROL AND
BUREAU OF INSECT PEST CONTROL
GRACE VITELLO - BUREAU OF URBAN SERVICES

ANNUAL REPORT

1985

BUREAU OF RECREATION

CHARLES H. DANE, CHIEF

Statistics for FY 1985 provide some interesting comparisions with FY 1984.

Overall attendance increased by 773,000 visitors over last year for FY 85 total of 11,833,324. Camping visitors and pool attendance increased slightly in most areas; rinks showed good increases; but paid day use was down in nearly all areas. These variations show the impact of inclement weather on a few weekends.

The end result financially was an increase of $300.00 in Bureau revenues from FY 84 to FY 85.

SEASONAL HIRING:

The filling of all lifeguard positions continued to be a problem in FY 85 particularly in regions 2 and 5. Recognizing this the Bureau has instituted a program to increase public awareness of this situation. Suggested formats for successful recruitment, training, and testing have been issued to all regions.

"ROLLOVER FUND":

Fiscal Year 1985 saw a major increase in the 2120-0810 rollover account. With this money, many items previously out of reach because of budget constraints, were attainable.

Items purchased included: hand and power tools for construction and repair; movie projectors for interpretive programs; quadrunners and horse trailers for the park police program; and golf type carts and trash compactors for maintainance personnel.

All of this equipment will go a long way to improve our ability to better serve the public and make their visits to our facilities a truly satisfying experience.

POLICE COVERAGE:

Due to large amounts of Federal funds being available for road construction and repairs on the highways of the Commonwealth there was a great demand for police traffic details during the summer months. Police Departments across the state were tapped for this work, (Local, NRO's, State, and Registry), and this created a major shortage in police availability for our Forests and Parks details.

State Police mounted units are now permanantly stationed at Walden Pond, Salisbury Beach, and Hopkinton State Park. This program is working well and is of great assistance to the Division.

The Park Police program expanded its horizons in many areas in FY 85. The addition of a horse trailer has increased mobility and has allowed patrols to cover Otter River, Lake Dennison, Wachusett Mountain, Upton, Ashland, Callahan, Robinson, Chicopee, Hampton Ponds, Nickerson, and Shawme Crowell State Forest. This program also participated in the Jr. Ranger program at Camp Winnataska (Girl Scout Camp) in Ashland. The presence of the mounted patrols has deterred inappropriate behavior and has been an excellent public relations tool. We plan to expand this program in FY 86.

LOG CABIN PROGRAM:

The beginning of FY 85 saw the completion of the first, DEM built log cabin. This cabin was constructed in Mohawk Trail State Forest by personnel from the Warwick Forestry Camp and DEM.

Construction of this prototype was slow and difficult with many changes and much learning. Hearty congratulations are due to all those involved.

The ultimate goal of this program is the construction of 30 log cabins per year statewide.

HANDICAPPED ACCESSABLE CAMPSITES:

During the last quarter of FY 85 we began a program designed to bring our camping areas up to accessability standards for handicapped individuals who visit our parks.

Working with groups such as the "Independent Living Association," and "Starvos Incorporated", we have looked at, made recommendations for and begun improving areas in 4 of the 5 regions.

Our goal is to have one handicapped accessable campsite in each region for the FY 86 - 87 camping season. With the help of these groups and others we will advertise the availability of these handicapped sites, document the demand for such facilities, and then plan the future expansion of this program.

EXHIBITS:

The Bureau was involved in many exhibits and shows statewide with major efforts being mounted at the Eastern States Exposition in Springfield, and the New England Flower Show in Boston. DEM's flower show exhibit was awarded first prize in the "Natural Plantings" category.

JUNIOR RANGER PROGRAM:

The Division's Junior Ranger program improved upon its previously successful operation. In eight parks across Massachusetts, children ages 10 to 14 completed a series of work and education projects to earn a certificate and patch identifying them as Junior Rangers. Projects were in four catagories; outdoor skills, park management interpretation, and resource management. In a ninth location, Ashland State Park, campers at a neighboring Girl Scout camp worked with the Divisions park management, fire control, and forestry staff while learning about the park, and as a result, qualified as Junior Rangers. Plans are made to expand this program for FY 86.

HOST FAMILY PROGRAM:

Another year of the "Host Family" program has proven profitable for all seven facilities involved. The families that participate are a great help in keeping the areas maintained, and assisting fellow campers with information.

Because of this programs popularity FY 1986 may see an increase in the number of areas in which this program is run.

PUBLICITY:

With new staffing in the Department's Communications office, the Bureau of Recreation has received a great deal of radio, television, and newspaper coverage over the year.

"Spots" on special events, programs, and the overall system are making the public more aware of what we offer and will surely boost visitation figures in FY 1986.

SIGNAGE:

All regions have done a good job in coming up to specification with the internal signage at all facilities. With the help of the state DPW, more and more lead-in signs are beginning to appear on major roadways. At many of our areas we had difficulty receiving permission for erection of DEM lead-in signs. We have prepared lists of locations that need DPW signage and submitted them to DPW. The DPW will make and erect these signs as their work schedules permit.

Trail signage is an issue that has seen some interesting developments during the end of FY 85. A pilot program for new trail signage should start appearing in the field furing the first quarter of FY 86.

CAMPING:

State parks with camping facilities have enjoyed continued interest and growth in Massachusetts recreation areas. This increase in activity has required added expense and effort to maintain all facilities at a level Massachusetts state park visitors are accustomed to.

In order to asertain the needs and opinions of the camping public, a survey is being conducted asking our visitors for the opinions on DEM policy matters and their thoughts on how facilities can be improved.

Results from this survey will assist DEM in decisions concerning opportunities offered by the Department.

DAY USE:

As fewer and fewer open water areas are available to the public and with a steady increase for the demand on water related recreation, the Divisions facilities featuring water based recreation become increasingly important. Proper management and planning at these facilities is necessary to anticipate and handle the expected increase. Proposals such as the increased beach area, bathhouse facilities and parking areas at Ashland State Park reflect the Department's commitment to future needs.

Those facilities equipped with picnic areas and trails share some of the increased attention of the public since they provide opportunities for outdoor activities not found in more rural settings. Cross country skiing and hiking have experienced a welcome increase in the number of participants. Our major effort in this area is an increased trail system with proper trail maintenance. Providing trails that are properly maintained, marked, and complete with updated maps will encourage the new enthusiast to use our facilities with confidence, while increasing the pleasure of the experienced user.

RINKS:

Skating Rinks have once again enjoyed tremendous popularity with the general public. Public skating, figure skating, college, high school, and youth hockey programs, broom ball, and speed skating are among the activities regularly scheduled at these facilities. There has been an increase in the number of retired people utilizing these facilities because of the physical and social opportunities offered. Senior citizens primarily utilized hours during weekday mornings which are normally not used by any other groups and provided an interesting increase in usage.

DEM's skating arenas are proud of the number of charitable organizations they have been able to assist; Toys for Tots, Boston Children's Service Association, Catholic Youth Organizations, Special Olympics, Girls Clubs, and many others have held fund raisers at our facilities.

Franklin, Newburyport, Lowell, and Peabody Rinks offered summer skating programs and numerous "no ice" summer activities which kept these rinks active year round. With the increases in summer activities and the continued interest in winter programs, both revenue and attendance increased in FY 85.

The rinks program has continued to assist the park program during the summer months by reassigning rink personnel to parks thus augmenting limited staffing.

POOLS:

Our Olympic sized swimming pools continue to offer a much needed recreational service in an urban environment. Red Cross "Learn to Swim" programs, swimteams, diving teams, and other recreational programming offer unique opportunities in many urban areas.

The Department is currently studying the construction of a new swimming pool in the Lawrence area. Currently four sites are under consideration.

ACQUISITION:

The Division acquired an additional 1,800 acres in FY 1985. This acreage was composed of 39 parcels at a total cost of over 2 million dollars. All but three of these parcels were additions to existing areas. These three exceptions were trail acquisitions, two parcels (totalling 19.5 miles) will make up the Douglas to Franklin Rail Trail, and the third is a 9.6 mile stretch from Northampton to

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Amherst which is referred to as the "Five College Bike Trail". These trails are abandoned railroad rights of way as is the Cape Cod Rail Trail and surely will be just as popular once they are developed.

CONSTRUCTION AND REPAIRS:

In FY 85 the Department of Acquisition and Construction issued over 2 million dollars worth of construction contracts. These were basically for refurbishment as opposed to new construction. Nearly 90% of the dollar value of those contracts was expended in Region 2 Heritage Parks.

*For specifics see Summary Construction and Repair. (Appendix F)

INTERPRETIVE SERVICES:

Interpretive Services continued its summer seasonal program during FY 1985 in 25 parks across the state. In addition to regular schedules including guided hikes, slide shows, campfires, and children's programs, each park sponsored two festival events during the season. These events were designed to attract non-traditional park visitors to the parks along with regular visitors. Events such as folk music performances, edible plant demonstrations, wildlife demonstrations, and Native American days focused attention on special features of the park system. The Division participated in Boston's Annual Fourth of July Harborfest by providing guided hikes on all of the Boston Harbor Islands and by sponsoring a special "Wind and Water Festival" on Gallops Island.

A major addition to the Interpretive program was the start-up of interpretive services at Pilgrim Memorial State Park. Six interpreters explained the significance of Plymouth Rock to over 400,000 visitors.

In addition special interest programs and tours at the waterfront and through historic Plymouth were offered on a daily basis.

Year round interpreters provided programs at Holyoke Range State Park, and Walden Pond. Region Two personnel completed a detailed replica of Henry David Thoreau's cabin at a site near the parking lot of Walden Pond State Reservation.

Preparations were made for the FY 1986 interpretive season with staff hiring through the spring and staff training during June. Sixty interpreters and twenty-five supervisors attended the Interpretive Training Institution, co-sponsored by the Division, the Appalachian Mountain Club, the MDC, and the National Park Services. An interpretive supervisor was hired and specific training held for Plymouth Rock staff, with the assistance of Plimoth Plantation. Island Managers for the Boston Harbor Islands received a full week of site specific training following the Interpretive Training Institute.

Interpretive Services responsibility increase significantly with the opening of several Heritage Parks during FY 1985. Programming, including the Junior Ranger program, began in Gardner, Lawrence, Holyoke, and Fall River, and increased in Lowell. Interpretive Services was involved with the hiring, training, and program coordination in these new urban parks. In addition, the Supervisor of Interpretive services worked as the Division laison with the exhibit planning process in North Adams, Lawrence, and Gardner.

A major project during FY 1985 was the development of a ten year Master Plan for the Interpretive Services program. A consultant planner was hired and a draft plan was completed with the help of Department employees and outside citizens groups. This plan will be finalized in FY 1986 and used as a guide for future administration and growth of the program.

Brochure updates were completed and printed for the Interpretive Services brochure, the Boston Harbor Island Brochure, and Plum Island Tide Pool and "Gift of the Glacier" brochures. Texts were developed designing done, and editing work begun for Salisbury Beach, Grape Island, and the Pittsfield Handicapped and Walden Self-Guided trails. These brochures will be printed in FY 1986.

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FISCAL YEAR 1985

BUREAU OF FOREST DEVELOPMENT

THOMAS F. QUINK, CHIEF FORESTER

INTRODUCTION

"Of all who plant and tend a crop, only the man of God and the man of the forest dedicate their lives to a certain faith in an everlasting harvest to be enjoyed in some future time by others." These words by George Cheek, former Executive Vice President of the American Forestry Association, serve as inspiration to personnel of the Bureau of Forest Development (BOFD) in carrying out the Bureau's mission of state land management, service forestry, forest products marketing and utilization, forest resources planning, urban and community forestry and resource conservation and development.

Thus, the Bureau through sound planning, management, and utilization practices for both the short and long term, focuses its efforts on humanized environments -- environments which have been transformed in such a manner as to be in harmony with the local natural forces as well as with human needs and aspirations. In the case of trees and forests, as well as of other living systems, we believe that improving on nature does not mean ignoring or distorting natural laws, but helping nature to express potentialities that enrich human life and at times increases ecological diversity, but that would have remained unexpressed in the state of wilderness.

The Bureau's programs continue to pursue these goals of effective and efficient stewardship of the Commonwealth's renewable forest resources.

FISCAL MATTERS

The three-bureau state budget account (2120-1100), titled "Forest Management and Development" continues to function smoothly. Cooperation among the three Bureau Chiefs in fiscal matters has effectively utilized the flexibility of the budgetary process.

The Bureau of Forest Development's budget held steady in 1984/1985. There was one major increase. The Forest Resources Planner position was approved and funded for one-half of FY '85. The budget totalled just over $1 million.

Federal grants and reimbursements for State & Private Forestry (S&PF) continued to dwindle. This decline is most dramatic in the Rural Forestry Assistance Program which services private woodland owners. The Reagan Administration continued to listen to organized forest industries who own and control large acreages of forests, and pruned back S&PF funds during the last few years. Forest Resources Planning monies were diminished also. The outlook for State and Private Forestry monies in the U.S.D.A. Forest Service's budget is not promising either. It does, however, offer a challenge which is being addressed by state foresters.

The Northeastern Area Association of State Foresters (NAASF) proposed a solution to this federal fiscal dilemma. NAASF passed a resolution which was adopted by the National Association (NASF), that would seek alternative annual funding (over $300 million) for S&PF by levying an excise tax on all imported wood products. These dedicated monies would fund all existing State & Private Forestry Programs plus cost-share programs such as ACP, FIP, etc. This proposal is a major thrust of NAASF and NASF during the next few years.

Regarding NAASF, Chief Forester Quink is the Vice President (President-elect) of that organization and will be taking over the leadership in mid-July 1985.

PERSONNEL

FY 1985 saw few changes/shifts in personnel, but a reclassification of a job title was a major happening.

A newly certified Civil Service list for the position of "Senior Forest & Park Supervisor", resulted in Jerome Ross, assistant to the Region I Management Forester, becoming the Senior F&P Supervisor at Massasoit State Park. William Anderson succeeded Ross.

Also, Susan McNamara, filled the Region III clerk position left vacant by Irene Bodah's retirement.

Daniel Perrin, long-time forester for the Division of Forests and Parks, was granted a leave of absence until early September 1985. Temporarily filling his position of Bristol County Service Forester is Joseph Perry, who was formerly the Forest and Park Supervisor at Myles Standish State Forest.

Dr. Muriel More, Forest Resources (Principal) Planner, moved into a new "02" state funded position in early calendar year 1985. Prior to this, Muriel was funded through a U.S.D.A. Forest Service grant.

A new "Forester" position for service forestry in Region III was requested in the FY 1986 state budget. All indications are that the new position will be established and funded for at least one-half of FY '86.

Bureau Secretary, Rose DiSabatino, unsuccessfully requested a reallocation of her position, Senior Clerk & Stenographer (Grade 8) to Head Clerk (Grade 12). As a result of a FY '84 DPA hearing, Rose was granted an upgrading to Principal Clerk (Grade 10).

Bruno Cadenelli, an assistant to Region V Management Foresters, retired on June 30, 1985 after 33 years of state service.

Resulting from a Civil Service Hearing, initiated by John Tiffany, the Civil Service Commission established the new title of "Assistant Forester". Prior to the ruling, personnel assisting state-land management foresters were hired from a certified "Forest & Park Supervisor" list. Civil Service determined that the F&P Supervisor title was out-of-line with the actual duties the individuals perform. Thus, the nine (9) F&P Supervisor positions were reallocated to that of "Assistant Forester" and were upgraded two grades, from 12 to 14. The Department was verbally informed that the new title will be shifted from Bargaining Unit #2 to Bargaining Unit #9. Individuals presently filling the F&P Supervisor slots were elevated to Assistant Foresters and will continue in those positions until a Civil Service Exam is developed for the Assistant Forester title.

PRIVATE LAND MANAGEMENT

SERVICE FORESTRY OVERVIEW

The Bureau of Forest Development employs 13 state service foresters who provide marketing and technical assistance to the Commonwealth's private woodland owners. Eighty-seven percent of the commercial forestland in Massachusetts is privately owned. Service foresters administer the Forest Taxation Law (Chapter 61), which provides for a preferential property tax on classified forestland under management. They are also directly involved in approving and inspecting harvesting operations on private forestlands, as governed by the Forest Cutting Practices Law (chapter 132, s. 40-46). Additional projects include administering the American Forest Institute's Tree Farm program at the state level; assisting Christmas Tree growers; conducting workshops for loggers, landowners, consulting foresters and municipal officials; and attending conferences, workshops and meetings relevant to forestry issues.

FOREST TAX LAW/FARMLAND ASSESSMENT

Chapter 61, The Forest Taxation Law, continued to be an active program and viable option for landowners to maintain their forestland under management and stewardship, thus being eligible for preferential property tax status. During FY 1985, 225 new applications/management plans representing 12,804 acres, and 250 applications/management plans for recertification representing 20,163 acres, were submitted for approval as classified forestland for a total of 475 plans and 32,967 acres. This represents approximately a 25% decrease in the number of plans and acreage submitted for classification from FY '84, the first decrease in several years. Region IV (Connecticut Valley counties) continued to maintain its role as the most populous region of the state for Chapter 61 land.

A problem tending to occur more so in eastern Massachusetts concerned the subdividing of forestland into smaller properties and houselots. Land that has a subdivision plan on file with a municipal planning board is ordinarily ineligible for Chapter 61 and is thus covered by Chapter 41. However, an interpretation made by Department Counsel stated that forestland approved as a Form "A" subdivision under the Subdivision Control Act would not be disqualified for Chapter 61.

Two advisories were issued by the Department of Revenue in January, 1985 with rulings to close some loopholes in Chapters 61A and 61B that had become a concern in the previous year. The Department of Food & Agriculture, which administers Chapter 61A, defined trees as those raised as non-forest trees or nursery stock to be sold in whole for transplanting, and required any productive woodland under 61A to have a management plan. Chapter 61B for recreational and "aesthetic" woodland, now forbids any extensive harvesting beyond 10 cords per year. It is hoped that these advisories will discourage landowners from putting their forestland into the easiest program for preferential tax status, and thereby uphold the public purpose towards which these laws are directed.

A change was made in mailing out approved management plans/certificates and notices of recertification to landowners. By changing from certified mail with return receipt requested to a certificate of mailing, the cost of postage was reduced by at least $1.00 for each letter or package. This has resulted in significant savings in postal expenses, and yet proves that the documents were mailed, satisfying the Rules & Regulations of the Law.

FOREST CUTTING PRACTICES LAW

FY 1985 marked the first full fiscal year for the amended Forest Cutting Practices Law (M.G.L. Chapter 132, s. 40-46) and its accompanying Rules and Regulations. Cooperation from the forest industry has generally been satisfactory, as they seem to realize that a uniform statewide law is easier to abide by than the plethora of differing municipal by-laws which could have been implemented. Some problems with enforcement have been encountered, as is to be expected for a new law, but in general it has been effective.

Various concerns regarding enforcement and administration of the FCP Law were addressed at several meetings for the State Forestry Committee, Advisory Committee and Chapter 132 Coordinators. One obvious problem is the occasional logging jobs discovered by DEM foresters without the required cutting plan and timber harvesting license. In these instances, loggers are claiming they are cutting less than the 25 MBF/50 Cord amount (and therefore exempt from the law), or are converting the land to some other use. DEM foresters have also had problems of knowing when logging jobs are in actual progress so that they can be inspected. A postcard mailing system was recently implemented whereby the landowner's agent would notify the Division as to when logging begins and ends. Another concern involved private foresters acting as landowners' agents, whose credentials are questionable or are unknown to the Division. Registration or licensing of foresters may be necessary in the future, as some states have already done.

To meet the law's requirement that operators display familiarity with Massachusetts laws that concern timber harvesting, changes were made in the harvesting license application procedures. A handbook entitled "101 Questions & Answers About Massachusetts Forest Laws" was developed by the State Forestry Committee and representatives of DEM, the Mass. Wood Producers Association and Mass. Association of Professional Foresters. A take-home test containing 10 questions from the handbook is sent to harvesting license applicants along with the handbook. The test is then sent back to the Boston Office, at which time a harvesting license is issued, provided that at least 70% of the answers are correct.

During fiscal 1985, a small (6%) increase in cutting plans submitted to the Division was evident from the previous year. A total of 1,123 cutting plans were approved by DEM foresters, prescribing 75,795 MBF and 87,710 Cords to be harvested on 40,764 acres of mostly private forestland throughout the state. Although more cutting plans were submitted than in FY '84, they collectively represented a decrease of about 10,000 MBF of timber for harvesting. This seems to indicate that logging jobs are of smaller amounts and that more "borderline jobs" (i.e., harvesting around 25,000 MBF or 50 Cords) are obeying the law rather than risk being shut down. Twenty-one cutting plans were disapproved, and at least 5 stop orders were issued for logging jobs in progress, until corrective measures would be taken.

Richard Johnson (Southern Worcester) worked closely with Sturbridge Town Officials to iron out problems arising from their own municipal by-laws concerning weight restrictions on logging trucks and necessity of posting performance bonds.

Informational workshops on the Forest Cutting Practices Act were also conducted by several service foresters for Conservation Commissions, Boards of Selectmen and municipal Planning Boards to familiarize them with the law.

CUTTING PRACTICES

The Chief Forester and the Bureau's foresters are authorized, as agents of the Director, to administer and enforce the Massachusetts Forest Cutting Practices Law (M.G.L. Ch. 132, S. 40-46). The Bureau's Boston office secretary has statewide responsibility for collecting, recording and filing all pertinent materials relative to this law.

Statistics and summary of timber harvesting operations pursuant to this law during FY 1985 are as follows:

COUNTY	#CUTTING PLANS (APPROVED)	STUMPAGE (MBF)	STUMPAGE (CORDS)	ACRES
Bristol	20	170	2,343	630
Plymouth, Cape & Islands	37	1,835	2,577	1,032
Norfolk	16	597	400	272
Essex	16	853	1,452	374
Middlesex	74	4,087	3,281	1,807
No. Worcester	146	10,389	13,392	5,356
So. Worcester	164	11,208	18,138	6,290
E. Franklin	138	8,700	12,060	5,819
W. Franklin	125	8,958	3,505	3,910
Hampshire	131	9,623	13,931	4,933
Hampden	118	7,773	7,884	4,397
N. Berkshire	79	5,754	6,564	3,228
S. Berkshire	59	5,849	2,183	2,716
TOTALS	1,123	75,796	87,710	40,764

CUTTING PLANS DISAPPROVED	21
STOP ORDERS ISSUED	6
TIMBER HARVESTING LICENSES ISSUED	636
- In-State Resident Loggers	563
- Out-Of-State Loggers	73

HARVESTING LICENSES

Section 46 of M.G.L. Chapter 132 requires that a person, firm or corporation harvesting timber or other forest products for hire or profit, and not exempt by section 44, must obtain an annual timber harvester's license from the Division. The number of licenses sold for FY 1985 amounted to 636; of which 563 were for in-state resident loggers, and 73 were out-of-state loggers. This represents a 2% decrease in the number of licenses sold during the previous fiscal year.

Concern has been expressed by loggers that the timber harvesting license be issued on a multi-year basis and with a permanent or semi-permanent number per the individual, as is done with driver licenses and motor vehicle license plates. These concerns will be addressed at an upcoming State Forestry Committee meeting early in FY 1986. It is not expected that either of these issues will find approval. Elaborate and expensive record-keeping and information retrieval systems would have to be developed.

A new timber harvester license will be issued beginning in FY 1986. It is wallet-sized, printed on durable paper and will be a different color each year.

PRIVATE CONSULTING FORESTERS

During FY 1985 there were 1,030 landowner requests for forestry assistance referred to private consulting foresters, almost a 10% increase from FY '84. This indicates a growing awareness among private woodland owners of forest management and the services and programs offered by the Division. The requests are generally for procuring the services of a private consulting forester to write Chapter 61 Forest Management Plans or Cutting Plans for timber harvesting operations.

Listed in the 1984 primary industry directory are 134 private consulting foresters that do business in Massachusetts, providing a wide range of forestry services. Each DEM Service Forester also maintains a list of consulting foresters known to operate in his/her district.

TREE FARM PROGRAM

Tree Farms are woodlands of 10 or more acres, usually privately-owned; managed for timber production, wildlife habitat, watershed, recreation and aesthetics; with silvicultural practices implemented to minimize the impacts of insects, disease and fire. There are currently 1,238 active Tree Farms comprising 293,012 acres in Massachusetts. There are nearly 55,000 Tree Farmers nationwide who manage their woodlands for pride, profit and pleasure. They help meet the nation's growing needs for wood and paper products.

DEM Service Foresters actively participate in the American Forest Institute's (AFI) Tree Farm program, and during FY 1985 inspected about 140 Tree Farms for certification or recertification into the program. The Bureau also helps AFI in cost-sharing the Tree Farm Booth at the Eastern States Exposition (The Big E) in West Springfield and at the Topsfield Fair. Several DEM service foresters also staffed the booths at both these fairs.

For the second consecutive year, the Massachusetts Tree Farm program received honors as the best in New England, at the annual Tree Farm meeting and banquet in February 1985.

A joint Tree Farm/Forest Products Week was held for the first time during the third week of October. DEM foresters Richard Kulis, Jack Jackson and Gerry Veale, as officers of the Mass. Tree Farm Committee, represented both AFI and the Division in planning press tours and media events with the Marketing & Utilization staff.

The state's Outstanding Tree Farmer of 1985 is Adrian S. Meyer of Peru, a small town in the Berkshires. Mr. Meyer, whose 142-acre Tree Farm has been certified since 1974, will be officially presented this honor during the Tree Farm Banquet at the Big E in September 1985.

CHRISTMAS TREE PROGRAM

With the current popularity of "choosing and cutting" one's own Christmas tree coupled with the demand for exotic species other than the traditional balsam fir and white spruce, Christmas Tree growers have become an important sector of the Commonwealth's forest landowners. The Bureau assists the Massachusetts Christmas Tree Association (MCTA) through marketing publicity, technical advice and referrals.

An annual list of Christmas Tree dealers is compiled by MCTA and sent to the Boston office for subsequent publicity. Bureau Foresters obtained and arranged the transportation of Christmas Trees to the Big E in West Springfield, to the Governor's Office and State House. The trees had been provided by members of the MCTA.

DEM Foresters were also active in attending several MCTA meetings and workshops on insects/diseases and taxes.

A plantation of Christmas tree saplings at Wachusett Mountain State Reservation is doing well. Established several years ago, the plantation will eventually serve as a source of Christmas trees for various state buildings.

FEDERAL FORESTRY PROGRAMS

The Forestry Incentive Program (FIP) funding for Massachusetts dropped from $129,884 the previous year to $108,414 this past federal fiscal year, a decrease of 16.5%. Since 1982 funding has decreased about 27%. This appears to be a combined result of FIP decreases nationwide and the new allocation formula used last year.

A total of 92 cases were reported complete, representing a 22% decrease in cases from the previous year. However, the summary of accomplishments shows that paperwork has not been completed on cases in Bristol, Hampden and Middlesex counties, even though each of these counties had been allocated its full share of funds. A total of 951 acres were treated for FIP funding, which is an increase of 6.5% from the year before. All treatments completed were classed as timber stand improvement, with none being reported for planting, site preparation or other silvicultural practices. Interestingly enough, 56% of the acres completed were in Berkshire County.

Overall, it appears that FIP accomplishments in 1984 compared favorably with those of 1983, despite a decrease of 16.5% in the total allocation. Program activity is most heavily concentrated in Berkshire and

Worcester counties, which together reported 62% of the cases and 74% of the acres treated.

INFORMATIONAL PROGRAMS

Most service foresters participated in spreading the message about the Forest Cutting Practices Act to various sectors of the general public who are directly or indirectly involved with the law. This second year of the revised law necessitated having training sessions for persons other than DEM personnel to help "work out the bugs" in its enforcement and administration. Workshops were conducted for municipal Conservation Commissions, Boards of Selectmen, Cooperative Extension Service representative, Boards of Assessors and private consulting foresters. Several foresters took part in Arbor Day and Career Day programs at local public schools in their district.

All of the service foresters attended a variety of workshops, seminars and demonstrations sponsored by public agencies and industry associations to increase their knowledge. Topics of these educational programs included aerial photo interpretation, insect identification, chainsaw safety, forest soil erosion, Christmas tree pests, soil productivity, wood energy, felling/bucking, business practices, prime lands classification, Project Learning Tree, and acid rain deposition. Tom Quink (Chief Forester) hosted the 31st Annual CFM Supervisors-Extension Forester Meeting in Springfield the last week of FY 1985 that was attended by more than 50 people from all over the Northeastern Area states including several Bureau foresters.

The Society of American Foresters (SAF) New England Winter Conference, held in Portland, Maine was attended by most Bureau personnel. It focused on managing forests for fish, birds and fur-bearers coincidental with that for wood products. The conference theme was congruant with the Commonwealth's mandate of managing forests for a multiplicity of uses. Much "applied" information was garnered.

ACID DEPOSITION PROJECT

Tom Quink has been a member of the Acid Deposition Research Review Committee, which is overseeing a statewide evaluation on the extent and severity of forest deterioration from acid deposition and air pollution. One of the two major research projects already underway is the "Assessment of Forest Stress" using color infrared aerial photography.

Because authorization for funding from the State Legislature was approved early in September 1984, aerial photography could only be completed in southeastern Massachusetts. The required "green leaf" stage in the forest foliage would remain later in the fall in that part of the state. Aerial photography in southeastern Mass. was done by the James Sewall Company of Old Town, Maine. Interpretation was then done by the Map-Down Project at the University of Massachusetts under the direction of Professor William MacConnell in the Forestry Department, and currently is completed for the 30% of the state that was flown. Interpretation involved locating potentially stressed areas, which show as discolored on the color infrared aerial photographs, and then transferring this information to USGS maps.

The final phase of this project, to occur during FY '86, is to determine the probable cause and extent of impact in these stressed areas by on-site inspection. Late in FY 85, Professor Matt Kelty of the U. Mass. Forestry Dept. was hired as coordinator to organize a field investigation team and develop survey methods. After certain forest areas have been identified as stressed, ground inspection will be conducted by a team of scientists representing the following scientific disciplines: entomology, pathology, forest ecology, soil science and forestry.

OTHER SPECIAL PROJECTS

DEM Foresters continue to serve on a 24-member advisory committee to the Hilltown Community Development Corporation (HCDC). DEM's Worcester County service foresters were active in educating teenagers and youngsters about forest management and natural resources. They assisted in conducting a Young Sportsman's Junior Conservation Camp and brought about 150 youths to the forestry museum at the Harvard Forest, explaining the various exhibits on forestry history and ecology. They also spoke about forestry and forest management at a Boy Scout Jamboree.

The Mount Tom Reservation Forestry Project was put on hold by the Hampden and Hampshire County Commissioners as a result of pressure from several small but vocal environmental organizations. DEM's Hampden County Forester had been overseeing the management plan. One area of about 50 acres was harvested, and another area was marked for logging but was never done. Conservationists had convinced the trustees of the Reservation that the forest should not be selectively harvested, but should remain in its natural state. The present overabundance of dead and diseased trees is causing concern among managers about the future condition and worth of this publicly owned acreage for forest products and recreation.

STATE FORESTLAND MANAGEMENT

PROGRAM SUMMARY

FY 1985 marked the second fiscal year for having eight management forester teams. They are responsible for the planning, implementation and supervision of forest management and forest products harvesting on more than 265,000 acres of forests, parks and reservations owned by DEM.

Attainable harvest figures were established by the Bureau for each management district early in FY 85, reduced slightly from the previous year. Foresters came close to reaching the board feet volume target, and surpassed the target for cordwood and contracted revenue on stumpage sales to be harvested by private logging companies. Total amounts sold for harvesting were 5,628.8 MBF of sawtimber stumpage, and 9,463 cords of fuelwood stumpage, generating $583,273 in contractual revenue for the General Fund.

The Bureau bids out forestry work on a contractual "03" basis to private consulting foresters in each of the management districts. Their duties, under supervision of management foresters, include boundary maintenance, marking timber sales, mapwork, layout of logging roads and landings, and any special projects that may arise.

COMMERCIAL SAWTIMBER SALES

Management forester teams marked and sold 5,566,804 board feet (or 5.566.8 MBF) or hardwood and softwood stumpage during FY 1985, generating $538,342 in contractual revenue. Although the number of bids generally varies from 1 to several, all but 2 of the 66 timber sales established were sold. The bids for these two sales were considered too low, and they will be offered for sale again in FY 86.

Several sawtimber sales included in these volume and revenue figures were actually for "in-house" use by DEM and traded to another state agency for site work. These miscellaneous sales are described in more detail later in this report. Prices received for stumpage averaged about $97/MBF on a statewide basis, down slightly from the previous year. Several of these sales were actually combinations of sawtimber and fuelwood stumpage, with a total of 4,928 cords sold in conjunction with the above-indicated board foot volume.

COMMERCIAL FUELWOOD SALES

Because of the extent of low-quality and small diameter hardwood stumpage in much of the state-owned forestland, commercial fuelwood sales are marked and sold as a means of conducting timber stand improvement (TSI). These sales consist of improvement cuttings, intermediate thinnings and harvesting poor quality, diseased or deformed trees, thereby allowing more growing space for the better potential crop trees. During FY'85, over 400 acres of forestland were slated for TSI by harvesting fuelwood, in which 3,488 cords were marked and sold. These 21 fuelwood sales generated $26,462 in contractual revenue. Three fuelwood sales did not receive any bids and will be announced for sale in FY'86. Converting the board foot volume of some sawtimber in one particular fuelwood sale results in an additional 118 cords, for an overall total of 3,606 cords slated for harvesting. The price per cord averaged only $7.34, a 50% decrease from FY'84!

HOME FUELWOOD PROGRAM

The Home Fuelwood program, initiated several years ago when home heating by wood became popular, was again conducted in FY'85. In this program, the public submits sealed bids on designated woodlots containing anywhere from 2 to 20 cords, and then harvest and remove marked trees for their personal domestic fuelwood use prior to the first snowfall. The purpose of this program is to assist homeowners who are committed to using wood as their primary source of fuel. It is also a means of having timber stand improvement done in forest stands containing a large proportion of poor quality or diseased trees.

During FY'85, the Home Fuelwood program was established at 14 state forests encompassing all 8 management districts. A total of 127 lots were contracted to individual home owners, containing 1,047 cords of fuelwood stumpage harvested and yielding $18,409.54 in revenue.

MISCELLANEOUS FOREST PRODUCTS SALES

The Bureau's first biomass sale was conducted by the Mid-State management forestry team at Rutland State Park during the second half of FY' 85. This sale was done on plantations of red pine and white pine which had been established by the Civilian Conservation Corps (CCC) during the Depression of the 1930's and had remained neglected ever since. Thus, it was decided that a thinning and selling the stumpage on a biomass tonnage basis would be the best way to accomplish TSI and still receive some revenue. The LeTourneau Land Clearing Company from New Bedford was the high bidder. By using a feller buncher and whole-tree chipper, this very reputable company was able to maneuver deftly in the dense plantation, leaving no slash on the ground and an overall manicured appearance in the 26-acre area that was thinned. The stumps of cut trees were also sprayed with a fungicide to prevent the spread of Fomes. Although the biomass sale realized only $3,031 for the 3,031 tons of stumpage harvested (at $1/ton) it accomplished some necessary and extensive silviculture in a relatively short amount of time.

Several other contracts established for forest products sales consisted of additional mortality sold in conjunction with sales already in progress, "in-house" harvesting for DEM-use, and inter-agency sales to the Division of Fisheries & Wildlife in which stumpage is traded for site work. "Dollar-equivalent" and volume figures for the "in-house" and inter-agency sales are included in with the commercial sawtimber sales to show the equivalent worth and amount, although technically no money changes hands.

At least 236.5 MBF, and 57 cords of stumpage were contracted for harvesting on Division of Fisheries & Wildlife lands, in which DEM realized a "dollar-equivalent" worth of about $24,800. An "in-house" sale consisted of 20,000 board feet of red pine harvested by Warwick Forestry Camp crews for eventual DEM-use as park furniture and signs etc., resulting in a cost-saving to the Commonwealth.

SUMMARY OF FOREST PRODUCTS SALES

101 contracts were established with logging firms or individual loggers for removal of specified sawtimber and fuelwood stumpage. These consisted of 66 sawtimber sales, 21 fuelwood sales and 14 Home Fuelwood programs, which have just been described.

Forest products sales are announced to the general public by mailing out a prospectus (first page of contract) to anywhere from 20 to 75 or more licensed timber harvesting firms known to do business in a particular forestry district. Part of the FPM&U initiative for FY 86 is to develop a 7-state network for selling forest products from state lands to the Northeast industry.

BOUNDARY MAINTENANCE

With over 1,500 miles of boundaries on the numerous parcels of state-owned forests and parks, it is essential to inspect and re-mark them at least once every 10 years. During FY 85, about 44 miles of boundaries were re-established, with much of this done in the Western Connecticut Valley district. Management foresters have increasingly found it difficult to assign sufficient man-hours to boundary maintenance, due mainly to the time involved in establishing and administering forest products sales.

G.O.A.L.S. INVOLVEMENT

Several management forester teams continued their involvement in developing G.O.A.L.S. plans for several state forests and parks. These Guidelines for Operations and Land Stewardship, in the form of management plans, will detail the objectives of management, expansion, use and protection of various parks and forests. The management foresters, whose districts include those selected state properties, are a key part of the team in the planning process, which includes planners and landscape architects. Their responsibility includes stand analyses of on-the-ground resources, research on past land-use and ecology, writing 10-year recommendations on management and silvicultural practices to be implemented and attending periodic GOALS meetings that are sometimes open to the public.

GOALS planning was begun on two DEM properties in FY 85: the J. Harry Rich State Forest in the Northeastern district, and the DAR State Forest in the Western Connecticut Valley district. In this latter property, the inventory process has been nearly completed.

SPECIAL PROJECTS

The following projects highlighted here are just some of many performed during the past year. The Southeastern management forestry team assisted Professor William Patterson with his research on the vegetative history at Myles Standish State Forest. They also did experimental plantings of Black Locust, Loblolly/Pitch Pine hybrids, and American Chestnut at several state forests. At Bradley Palmer State Park, the Northeastern team and the park crew harvested red pine that was used for a log cabin in DEM's exhibit at the New England Flower Show. A regeneration study was done by the Western Connecticut Valley team on an area that had been logged a year ago at the H.O. Cook State Forest. William Cote, Assistant Management Forester, updated computer and word processing programs for tallying inventory data and printing out timber sale contracts. He also developed a computer program to determine volume from stump measurements and modified several other programs for Bureau use.

Management foresters also did land acquisition evaluations, trail surveys for recreational use, deed research to establish boundaries and access rights, and attended workshops on various subjects pertinent to forestry.

FOREST PRODUCTS MARKETING AND UTILIZATION

The entire Commonwealth -- through increased small businesses, higher employment, a more stable tax base and wise use of forest resources -- shares in the benefits offered by the FPM&U Program. This program plays an integral role in the development of industry and small businesses within the Commonwealth due to its involvement in the various stages of wood processing, from the stump to the finished product. Direct beneficiaries of this program are woodland owners, loggers, wood products manufacturing firms and their employees. Alternative fuel industries and persons who supplement their energy needs with cordwood, wood chips or pellets also benefit.

The FPM&U Program assists forest landowners and wood processors through technical services, advice and referrals on the harvesting, manufacturing and marketing of forest products. Increased utilization of wood, maximized efficiency in the manufacturing process and expansion of markets are key objectives of this program.

INDUSTRY ASSISTANCE AND PROMOTION

Besides involvement in planning a wood products industry trade show, mentioned later in this report, the FPM&U staff sought to promote the wood products manufacturing industries by other means. The Bureau published A Guide to Exporting Furniture and Related Wood Products as a handbook. Copies have since been sent to various companies, industry associations, the U.S. Forest Service and the National Association of State Foresters (NASF). It is being used as a guide by NASF in developing regional workshops on wood products exporting. One such workshop is planned for FY 86 in the Boston Area.

Several articles on innovative technology (System 6, Woodchuck Truck, red pine for state park furniture), interesting companies (North Carver Pine sawmill) and various events (Forest Products Week, conference on exporting) were published in magazines and newspapers that cover the wood products industries, forest management and the parks/recreation industries.

A publication entitled Massachusetts Timber Economy: A Review of the Statistics 1984, was published by the Bureau's M&U program. This handbook was compiled and researched by scientists of the Northeastern Forest Experiment Station, U.S. Forest Service in Burlington, Vermont. Numerous copies have since been distributed to interested persons requesting statistical information on the state's forest-based industries.

A feature article on forestry, written by Boston Globe columnist Peter Anderson, appeared in the January 6, 1985 edition of the Boston Globe Magazine. Much information and additional sources to contact were provided to Mr. Anderson by the Chief Forester and M&U Specialist. The article enlightened the general public with an in-depth look at the various segments of forestry in Massachusetts, including the wood products harvesting and manufacturing industries, forest laws, government agency programs, consulting foresters, history of forests and the industries and management of private and state forestland.

The M&U Specialist was appointed to a Statewide Wood Industry Advisory Council and participated in the two meetings held so far. This newly-established council advises the Executive Office of Economic Affairs (EOEA) on the best way to assist wood manufacturing industries that apply to Economic Affairs for various support services. To date, the main thrust of the council has been to advise Economic Affairs on the Hilltown Community Development Corporation's (HCDC) Wood Industry Project, which is attempting to establish a commercial dry kiln facility and pallet operation in western Hampshire County.

The M&U staff also provide stumpage price information to mills, loggers, woodland owners, municipal officials and other interested persons through the "Massachusetts Roundwood Stumpage Price List". Compiled by the M&U Assistant from questionnaires distributed to the Mass. Association of Professional Foresters (MAPF) and the Mass. Wood Producers Association (MWPA), the stumpage price list was re-designed and published in December 1984 and May 1985. It is sent to the Mass. Association of Assessing Officers (MAAO) to assist municipal assessors in determining the value of timber harvested, and is also published in The Forestland Review. In addition, the stumpage price list is sent to an increasing number of landowners, loggers and foresters that request it.

WOOD PRODUCTS TRADE SHOW

The Northeast Wood Products Expo (NEWPEX '85) became a major project of the M&U staff during FY 1985. The idea for a trade show was proposed by the M&U Specialist in January 1984. Soon after, an Advisory Committee was established, comprised of state, federal and private industry association representatives to begin planning the trade show.

NEWPEX '85, to be held November 21-23, 1985 at the Marriott Hotel Copley Place in Boston, will offer a regional marketplace for the manufacturers of semi-finished to finished wood products and components from 10 northeastern states to buyers and finished product makers from other states and countries. The intent of NEWPEX '85 is to foster the expansion of markets for manufacturers (particularly small to medium size firms) of dimension lumber, furniture and fixture parts, cabinet stock, handles, millwork, novelty/toy parts, marine items and other products.

Early in FY 85, a professional exposition management firm from Boston known as Dame Associates Inc., and represented by Mr. Doug Dame, was chosen as the trade show manager. The M&U staff provided the expo manager with names of targeted companies for him to establish mailing list of potential exhibitors and attendees. They set up meetings of the NEWPEX Advisory Committee in several different locations every 2 or 3 months, coordinated planning efforts with the chairpersons of each subcommittee and the expo manager, sent out meeting minutes and other correspondence regularly, promoted the trade show at various association conferences and to individual companies via the telephone, and arranged for advertising and press releases in several industry publications.

"SYSTEM 6" PROMOTION

In an effort to establish a new wood products manufacturing industry in Massachusetts that would utilize the abundant and existing low-quality timber resource, the M&U staff promoted the System 6 technology.

With this technology, low-grade hardwood is processed into high-valued end products such as furniture and cabinets by producing a new intermediate component known as standard-size blanks. Among the manufacturing concepts involved are highly automated methods of converting logs to blanks, total processing of every board that contains a minimum-size cutting, and minimized machine-operator decisions and limited choices. Because hardwood forests do not yield an adequate supply of large, high-quality logs desired by these manufacturers, the result tends to be shortages and price increases. If the furniture and cabinet industries converted to using these high-quality blanks (edge-glued panels of clear wood) instead of using high-grade lumber, they would avoid the steep price increases for this raw material.

To meet this effort, the FPM&U staff arranged a second workshop on System 6 technology, hosted by Director Bliss (the first workshop was held in FY 84, hosted by Commissioner Gutensohn) at Mt. Wachusett Community College in November. The one-day session featured scientists from the Forest Products Lab in West Virginia who had developed the technology. Various aspects of the technology were explained, including economic analyses of starting a System 6 plant and a presentation on cost-sharing programs to finance plant installation. The workshop was attended by about 20 persons from wood products manufacturing companies and sparked some genuine interest. Soon after, an article by the M&U staff appeared in a few industry publications, and even generated a couple of inquiries from outside New England.

Since the workshop, the M&U Staff has worked closely with two targeted wood products manufacturing companies in assisting them to establish a standardized blanks processing facility. This has involved several meetings with each or both of the industry executives and with municipal officials.

From research conducted by the U.S. Forest Service, resource analyses have recently been conducted to determine the extent of the raw material in the regions of which the 2 targeted companies are located. An economic feasibility study is now being done, which is partially funded through the "Improved Wood Utilization Program".

It is hoped that Massachusetts will have the nation's first operating plant for processing short logs into blanks.
partially manufacture the blanks with some other company completing the processing. The state contains large amounts of small diameter white pine which could be utilized in producing standard size blanks from edge-glued pieces.

FOREST PRODUCTS WEEK 1984

A proclamation signed by Governor Dukakis declared the week of October 22-26, 1984 as Massachusetts Forest Products and Tree Farm Week, focusing attention on the forest products industries and their contribution to the state's economy. Approximately 45,000 people are employed in the overall forest and wood products industries which include paper manufacturing, retailing and affiliated service industries; producing about 6.5% of the state's total industrial payroll and millions of dollars in tax revenues.

Opening Day ceremonies, held on the Boston Common directly in front of the State House, featured New England's Outstanding Tree Farmer and his team of oxen performing a log-hauling demonstration to the gathered crowd and many curious on-lookers. Press tours of Tree Farms and wood products manufacturing companies were also planned. The Essex County tour (Region II) attracted several newspaper reporters, and subsequently several fine articles, most notably an excellent article in The Christian Science Monitor. Region IV's event consisted of a press conference at the new Holyoke Heritage State Park with exhibits on forestry, the wood processing industry and an excellent display of horse logging photographs taken by the Hampshire County service forester. Articles promoting forest management and the wood manufacturing industries appeared soon after in Springfield area newspapers.

INDUSTRY DIRECTORIES

A new primary industry directory entitled 1984 Sawmillers, Loggers and Consulting Foresters Directory was published during FY 85. Directories were sent to many companies and individuals, mostly from out-of-state, that had requested them during the past several months. The primary directory will also be mailed to the secondary wood products industry early in FY 1986, fulfilling its purpose as a marketing tool.

Another directory, entitled Massachusetts Secondary Wood Products Industry Directory, was compiled by a private consultant on contract with the Bureau. Listing almost 600 manufacturers of semi-finished and finished wood products, the directory will be published during the summer of 1985, and then sent to the primary and secondary industries early in FY 1986.

The M&U Assistant developed and sent an exporting questionnaire to targeted companies that manufacture lumber and other unfinished wood products. Fifty percent of the questionnaires were returned and then forwarded to a marketing representative in the Dept. of Food and Agriculture. The markets office of that agency is developing an export directory listing Massachusetts companies in the food/fisheries processing, agricultural and forest-based industries that do export or want to export.

TECHNOLOGY TRANSFER

The M&U staff attended and/or planned several workshops, industry association meetings and conferences during FY 85. As part of the program initiative, the M&U Specialist was elected vice-chairman of the Forest Products Research Society's (FPRS) Northeast Section. This responsibility consisted of planning program agendas for the Fall 1984 and Spring 1985 meetings of that association's regional section, which were held in Portland, Maine and Boston respectively.

The annual meeting of state and federal Marketing/Utilization Specialists representing the 6 New England states plus New York was held at the Alton Jones Environmental Education Center of the University of Rhode Island. The M&U staff attended/participated.

Other events attended included the Building Materials East Expo (sponsored by the Northeast Retail Lumbermens Association), the Home Show, and the Annual Conference of the Northeastern Lumber Manufacturers Association.

RESOURCE CONSERVATION AND DEVELOPMENT

While the 3-year Plan of Work, submitted to the U.S. Forest Service, did not receive any funding, the RC&D component of the Bureau continued to be actively involved with the forestry issues and goals of western Massachusetts. Extended injury in the Region V forestry staff necessitated a shift in the duties of the RC&D Forester to the Northern Berkshire Management District, thereby lessening influence in other circles. However, the RC&D Forester was active in numerous projects, meetings, technology transfers and field visits in the areas of Wood Energy/Biomass, Marketing & Utilization, Private Forestland Management, Industry Contact and State Forestland Management. Several of these events are highlighted as follows.

The RC&D Forester served as Bureau representative at meetings involving the DEM/Dept. of Energy Wood Energy Development project and a DOE/DEQE/Legislative forum regarding air quality standards for wood-fired industrial boilers. He organized and hosted a Felling and Bucking Workshop for loggers, planned Forest Products/Tree Farm Week events in Regions IV and V, and assisted several mill owners by explaining ways to improve operating efficiency, product quality and marketing strategies.

Mr. Veale also chaired the 1984 Tree Farm Booth committee for the Eastern States Exposition and was instrumental in developing the land-use history theme of the booth. He served on the Mass. Tree Farm Executive Committee and represented DEM at the Twilight Meeting of the Mass. Christmas Tree Association.

Other projects in which the RC&D Forester participated in were as a member of the Advisory Committee for the Northeast Wood Products Expo; serving on the Wood Advisory Committee for the Hilltown CDC project; organizing a tour of International Paper Company's Corinth mill in New York to develop a market for spruce from state forestland timber sales; and drafting the RC&D section for inclusion in the Forest Resources Plan.

URBAN AND COMMUNITY FORESTRY

The Urban and Community Forestry Program enjoyed a very active year during FY 1985. In addition to the usual assists, some of the higlights follow:

SPIRIT 85

The U&CF Program was chosen to coordinate the Division of Forests and Parks' efforts toward the beautification of the Commonwealth. Through the use of intra-regional competition and by encouraging imaginative use of our limited funds, much was accomplished. Areas were judged by the Association of Massachusetts Garden Clubs and prizes are to be awarded. Each region produced a winner and the competition was fierce. Winners and prizes are yet to be announced. In the near future each regional winner will be treated to a photo session with the Governor.

ARBOR DAY 1985

Arbor Day was proclaimed by Governor Dukakis and celebrations were sponsored by the U&CF Program in each of the Division's 5 regions and in Boston as well. A common linden (Tilia vulgaris) was planted on the Beacon Street side of Boston Common. This healthy young tree is replacing a victim of Dutch Elm Disease.

In Region I, every forester and fire warden sponsored a celebration. Arbor Day was well celebrated in Southeastern Mass.

PARKER RIVER NATIONAL WILDLIFE REFUGE

The U&CF Program Coordinator was selected to represent the Division of Forests & Parks during the process through which the U.S. Fish & Wildlife Service made known the process they intend to utilize for eliminating spent lead shot from certain of their areas. Hazardous waste on the refuge! This was a very interesting project.

Functioning on the assumption that the spent lead shot was available for ingestion because of its failure to settle very deeply into the peatlike soils, it was proposed, and is currently being carried out, to deep-plow the area. This will turn over the upper layer of shot-filled soil and bury it beneath the feeding zone of the migratory water fowl.

1985 TREE WARDENS

The U&CF Program made a presentation to the Massachusetts Association of Tree Wardens on the Forest Cutting Practices Law (Chapter 132). We realize that the Tree Wardens are "Jacks of All Trades" concerning trees. The U&CF Planner informed them of recent changes in Chapter 132 and how DEM administration could help them. The talk was very well received.

LAWRENCE HERITAGE STATE PARK

The U&CF Program provided diagnostic information to this new area concerning the state of health of some of its plant material. Improper planting techniques, coupled with an over enthusiastic irrigation program, caused some problems.

WINCHESTER TOWN FOREST

The U&CF Porgram provided management advice to a group of concerned citizens and officials from the Town of Winchester. Their town forest has been suffering from neglect ("Proposition 2½" disease). Evidence of old management was very obvious. It's a shame to see such a well cared for resource slowly slipping away, and it is not too late to implement forest management practices.

URBAN FORESTRY CONTRACT WITH UNIVERSITY OF MASSACHUSETTS

The U&CF Program once again sponsored a contract with the University of Massachusetts Shade Tree Labs. The end result being that the DEM hires and uses the services of Urban Forester Ernest DeRosa at the Field Experiment Station in Waltham. Ernie's normal functions include diagnostic and advisory services to municipalities, tree wardens, arborists, state land managers, and home owners. In addition to his day to day duties, Ernie has participated in several "special" projects.

He has been on the program for the Mass. Association of Tree Wardens meeting, and the Mass. Utilities and Arborists Conference. He has entered several Mass towns in the Tree City USA programn. Tree City USA is a means of "showing off" our cities and towns which are committed to urban forestry. Ernie is a major force behind the training and continuing education courses for certification of Massachusetts Pesticide Applicators. Ernie represents the Commonwealth in the International Society of Arborculture, and he is always involved in the New England-New York Urban Forestry Conference.

FOREST RESOURCES PLANNING

The primary goal of the program is to prepare, implement and update a comprehensive forest resources plan for the Commonwealth. This plan will provide policy and program direction for the Division of Forests and Parks and also the Commonwealth's portion of the Federal Forest and Rangeland Renewable Resources Planning Act (RPA) efforts. The program is directed by Dr. Muriel E. More.

During FY 1985 considerable progress was made in the Forest Planning Program. The discussion draft of the state forest resources plan was completed and reviewed by numerous public and private agencies, organizations and individuals, the Massachusetts Forest Resources Advisory Committee and the DEM. At this time the plan is undergoing final copy revisions and will be printed this fall. After that the Advisory Committee will present the plan to the Director, Division of Forests and Parks, Commissioner, Department of Environmental Management and the Secretary, Executive Office of Environmental Affairs for formal acceptance and implementation. The plan makes forest resource policy and program recommendations based on an analysis of State forestry programs, current forestry legislation, six technical working group reports (covering issues and proposed solutions for the planning and management of state, municipal and privately owned forest land, forest industries, wood energy and forest protection) procured by the Advisory Committee, a status report on acid rain and four technical supply/demand assessments of the Commonwealth's major forest resources (timber, recreation, wildlife and water) prepared through the Forest Resources Planning Program. Major emphasis in the coming year will focus on implementing the plan through Division programs and encouraging other agencies and organizations to do likewise.

In other forest planning activities, Dr. More has continued to serve as the Division Coodinator for the Massachusetts Prime Timberlands Mapping Project. The Department of Forestry and Wildlife Management at the University of Massachusetts has been under contract to inventory and map seven counties covering 1,790,500 acres of commercial forest land utilizing a site classification system that estimates both hardwood and softwood potential productivity. The initial counties (Berkshire, Hampden, Hampshire, Franklin, Essex, Middlesex and Plymouth) have been completed and the University's final report was submitted in June to the Division of Forests and Parks and the U.S. Forest Service. Map products will be distributed to the Division's administrative regions in the near future and funding is currently being sought to complete the remaining counties in the state. In addition, Dr. More has been serving on the Natural Resources Planning Committee which is overseeing development of a five year Natural Resources Plan for Massachusetts under the auspices of the State Commission for Conservation of Soil, Water and Related Resources, organized a six state workshop sponsored by the U.S. Forest Service to provide an overview of the Implan input/output economic model and developed a proposal to study the economic impact of forest recreation on the State's economy.

Finally, Dr. More attended the twenty state Northeastern Forest Resources Planners Association Conference held in May in Milwaukee, Wisconsin and has been asked to serve on the Association's new standing committee which will focus on increasing state input into the Federal FPA planning process. Initial efforts will be directed to the 1989 Federal assessment of forest resources.

INCOME

The forestry account derived income from several sources -- namely from federal grants, forest products sales from state lands, the issuance of timber harvester licenses, filing fees and leases/permits. These monies totalled $733,262 for FY 1985.

The following is an analysis of the Bureau's receipts.

State Lands and Service Forestry Income		Amount
Timber Harvester Licenses		$ 7,090
Forest Products Sales*		583,273
Chapter 61 Tax Law Filing Fees		16,835
Rents/Leases		8,904
	Sub-Total	$ 616,012
Federal Income		
U&CF (Urban & Community Forestry)		$ 59,300
RC&D (Resource Conservation & Development)		0
RFA (M&U/Service Forestry/Tree Improvement)		24,960
FRP (Forest Resources Planning)		14,000
FIP (Forestry Incentives Program)		4,500
ACP - Technical Assistance		14,400
	Sub-Total	$ 117,160
	TOTAL	$ 733,262

* Includes several inter-agency sales with the Division of Fisheries & Wildlife under an agreed-upon cooperative management program, amounting to a "dollar equivalent" worth of $24,803, and two harvests for "in-house" use of state parks.

A variety of factors affected the demand and prices for stumpage harvested from state lands, in particular the value of the U.S. dollar. During the past year, the U.S. dollar reached new highs in value relative to other major world currencies. This resulted in a continuing decline in the demand for red oak and other exportable species to other countries as its price in American dollars was too expensive. Thus, the supply of red oak logs and lumber surpassed the demand, which eventually brought lower prices at the stump offered to the landowners. The oversupply in wholesale yards was initially created by the high prices Europeans were offering for red oak in the late 1970's/early 1980's when the U.S. dollar was weaker. Demand was high, red oak increased greatly in value, and "everyone" wanted to sell this valuable wood growing in their woodlot.

The average value of fuelwood stumpage in state land sales dropped significantly from $14/cord to about $7/cord from FY 84 to FY 85. This could be attributed mainly to the declining demand for fuelwood, as conventional energy sources (oil, natural gas, electricity) levelled of in price, and are thus much easier to use. This trend points to the need for developing local industrial markets for wood energy, such as whole-tree chips.

He has been on the program for the Mass. Association of Tree Wardens meeting, and the Mass. Utilities and Arborists Conference. He has entered several Mass towns in the Tree City USA programn. Tree City USA is a means of "showing off" our cities and towns which are committed to urban forestry. Ernie is a major force behind the training and continuing education courses for certification of Massachusetts Pesticide Applicators. Ernie represents the Commonwealth in the International Society of Arborculture, and he is always involved in the New England-New York Urban Forestry Conference.

FOREST RESOURCES PLANNING

The primary goal of the program is to prepare, implement and update a comprehensive forest resources plan for the Commonwealth. This plan will provide policy and program direction for the Division of Forests and Parks and also the Commonwealth's portion of the Federal Forest and Rangeland Renewable Resources Planning Act (RPA) efforts. The program is directed by Dr. Muriel E. More.

During FY 1985 considerable progress was made in the Forest Planning Program. The discussion draft of the state forest resources plan was completed and reviewed by numerous public and private agencies, organizations and individuals, the Massachusetts Forest Resources Advisory Committee and the DEM. At this time the plan is undergoing final copy revisions and will be printed this fall. After that the Advisory Committee will present the plan to the Director, Division of Forests and Parks, Commissioner, Department of Environmental Management and the Secretary, Executive Office of Environmental Affairs for formal acceptance and implementation. The plan makes forest resource policy and program recommendations based on an analysis of State forestry programs, current forestry legislation, six technical working group reports (covering issues and proposed solutions for the planning and management of state, municipal and privately owned forest land, forest industries, wood energy and forest protection) procured by the Advisory Committee, a status report on acid rain and four technical supply/demand assessments of the Commonwealth's major forest resources (timber, recreation, wildlife and water) prepared through the Forest Resources Planning Program. Major emphasis in the coming year will focus on implementing the plan through Division programs and encouraging other agencies and organizations to do likewise.

In other forest planning activities, Dr. More has continued to serve as the Division Coodinator for the Massachusetts Prime Timberlands Mapping Project. The Department of Forestry and Wildlife Management at the University of Massachusetts has been under contract to inventory and map seven counties covering 1,790,500 acres of commercial forest land utilizing a site classification system that estimates both hardwood and softwood potential productivity. The initial counties (Berkshire, Hampden, Hampshire, Franklin, Essex, Middlesex and Plymouth) have been completed and the University's final report was submitted in June to the Division of Forests and Parks and the U.S. Forest Service. Map products will be distributed to the Division's administrative regions in the near future and funding is currently being sought to complete the remaining counties in the state. In addition, Dr. More has been serving on the Natural Resources Planning Committee which is overseeing development of a five year Natural Resources Plan for Massachusetts under the auspices of the State Commission for Conservation of Soil, Water and Related Resources, organized a six state workshop sponsored by the U.S. Forest Service to provide an overview of the Implan input/output economic model and developed a proposal to study the economic impact of forest recreation on the State's economy.

Finally, Dr. More attended the twenty state Northeastern Forest Resources Planners Association Conference held in May in Milwaukee, Wisconsin and has been asked to serve on the Association's new standing committee which will focus on increasing state input into the Federal FPA planning process. Initial efforts will be directed to the 1989 Federal assessment of forest resources.

INCOME

The forestry account derived income from several sources -- namely from federal grants, forest products sales from state lands, the issuance of timber harvester licenses, filing fees and leases/permits. These monies totalled $733,262 for FY 1985.

The following is an analysis of the Bureau's receipts.

State Lands and Service Forestry Income	Amount
Timber Harvester Licenses	$ 7,090
Forest Products Sales*	583,273
Chapter 61 Tax Law Filing Fees	16,835
Rents/Leases	8,904
Sub-Total	$ 616,012
Federal Income	
U&CF (Urban & Community Forestry)	$ 59,300
RC&D (Resource Conservation & Development)	0
RFA (M&U/Service Forestry/Tree Improvement)	24,960
FRP (Forest Resources Planning)	14,000
FIP (Forestry Incentives Program)	4,500
ACP - Technical Assistance	14,400
Sub-Total	$ 117,160
TOTAL	$ 733,262

* Includes several inter-agency sales with the Division of Fisheries & Wildlife under an agreed-upon cooperative management program, amounting to a "dollar equivalent" worth of $24,803, and two harvests for "in-house" use of state parks.

A variety of factors affected the demand and prices for stumpage harvested from state lands, in particular the value of the U.S. dollar. During the past year, the U.S. dollar reached new highs in value relative to other major world currencies. This resulted in a continuing decline in the demand for red oak and other exportable species to other countries as its price in American dollars was too expensive. Thus, the supply of red oak logs and lumber surpassed the demand, which eventually brought lower prices at the stump offered to the landowners. The oversupply in wholesale yards was initially created by the high prices Europeans were offering for red oak in the late 1970's/early 1980's when the U.S. dollar was weaker. Demand was high, red oak increased greatly in value, and "everyone" wanted to sell this valuable wood growing in their woodlot.

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ANNUAL REPORT

FISCAL YEAR 1985

BUREAU OF INSECT PEST CONTROL

CHARLES S. HOOD - CHIEF

1. SUMMARY of CONDITIONS FY'85

During the past few years and up to and including FY'85, oak species in both the black and white groups have sustained a considerable amount of damage from forest insect pests and climatic conditions. The oak leaftier complex of insects has killed thousands of red oak in Eastern Franklin County and is now exhibiting outbreak conditions in Bristol and Norfolk Counties. An aerial survey conducted in June of this year indicates an increase in both extent and severity of the complex in Southeastern Massachusetts.

Following the most severe and widespread outbreak of gypsy moths ever experienced in the one hundred and sixteen years that it has been present in Massachusetts it was confidently expected to collapse to insignificant numbers in the years immediately following. Such has not been the case. Although affected acreage has decreased considerable since 1981, down to 217,500 acres in 1983, it showed an increase to 308,599 acres in 1984 and, if all indications prove true, that acreage will double in 1985. The oak species continue to be damaged in as much as oak is the favored food of the gypsy moth. Mortality in oak is continuing across the state.

To compound the situation even further, oak in some parts of the State were hit by frost in the late spring of 1985 during a crucial time in bud development and lost the first flush of leaves.

Another oak problem is the recent buildup in the Southern Connecticut Valley and east to Worcester County of a small moth called the oak leaf skeletonizer, Bucculatrix ainsliella. Feeding became noticeable in June.

Finally, 1985 has seen an increase in a complex of leaf rollers apparently working in conjunction with the leaftier complex in Southeastern Massachusetts. The major species in this complex is Archips semiferanus. Oak foliage is its favored food.

Sugar maples planted years ago as shade trees along many of our city and towns streets are continuing in a state of decline. Once decline starts in maple, it appears to be irreversible resulting in necessary removal and subsequent cost to cities and towns.

At the request of the U.S. Forest Service a survey was conducted during FY'85 to confirm the suggested presence of an aphid, Pineaus boerneri, known to severely damage red pine. Following considerable effort by Bureau personnel the insect and the extent of its present range in Massachusetts was determined. The subject will be covered more fully later in this report.

2. GYPSY MOTH DEFOLIATION FY '85

The annual aerial survey to detect current gypsy moth defoliation was conducted in early July of 1984. A total of 25.5 hours of flying time was required to complete the survey (Map A). What was suspected during the larval feeding period proved true. Total acreage showing visible defoliation was 308,599 an increase over the previous year. Experience and past history of the gypsy moth in Massachusetts would tell us that this shouldn't happen so soon after a major outbreak.

One theory advanced is that the 1981 outbreak was so severe and extensive that in certain locations populations of the moth died of starvation before the normal buildup of the nucleopolyhedrosis virus could occur. This would have left the surviving population relatively free of the disease thus allowing the survivors to quickly build again to epidemic proportions. For whatever reason, the fact remains that populations of the pest are again on the increase in the south central region of the state.

The rise in gypsy moth populations on Cape Cod has to be viewed in a different light. Here the gypsy moth populations rise and fall independently of the rest of the state. In 1981 when almost every susceptible area of Massachusetts was severely attacked by the pest, Barnstable and Plymouth Counties were relatively free of the moth. Since that time, however there has been a steady population increase.

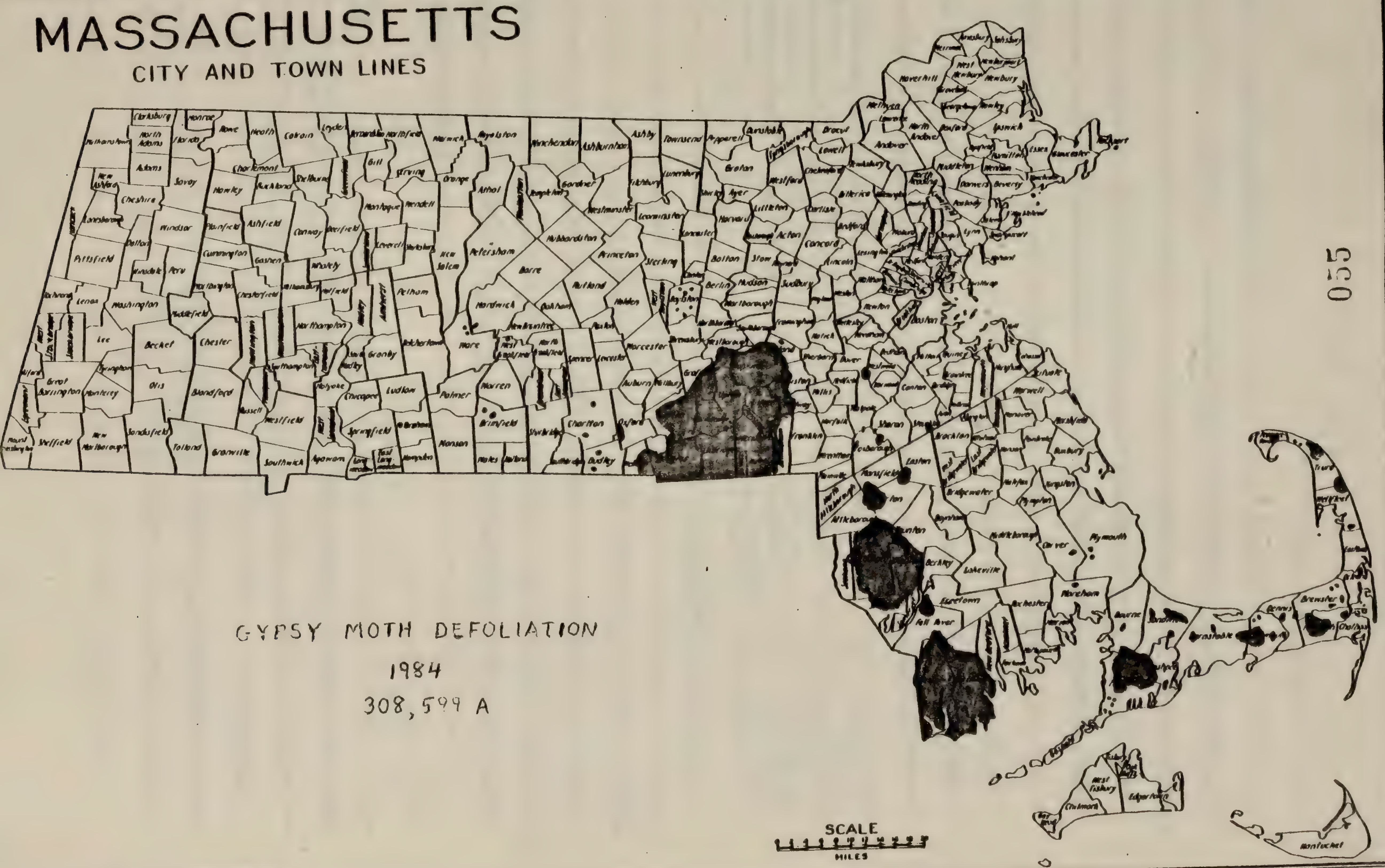
3. CONTROL PROGRAMS

Anticipating severe problems in 1985, a request was made to the Legislature to include a sum of money in the Supplemental Budget for the purpose of reimbursing communities for 50% of their costs for gypsy moth control and to allow the Department to spray certain of our recreation areas. A sum of $400,000 was appropriated. The result was that 12 communities sprayed with Bacillus thuringiensis and became eligible for reimbursement and received the amount listed below:

Webster	$17,411.00	Northbridge	$11,988.18
Westborough	$9,126.32	Mendon	$13,999.60
Uxbridge	$24,779.93	Millville	$5,000.04
Holliston	$23,967.06	Milford	$36,876.43
Holden	$1,054.48	Taunton	$427.73
Falmouth	$6,971.06	Blackstone	$18,861.25

The cost for reimbursing the above communities totalled $160,463.08

On the morning of May 29, 1985 Bureau personnel began directing an aerial spray program which eventually included parts of Ashland State Park, Hopkinton State Park, Upton State Forest, Purgatory State Reservation, Douglas State Park, Shawme Crowell State Park and Nickerson State Park. Bacillus thuringiensis was applied by helicopter at the rate of 20 Billion International Units (B.I.U.). The contractor was AgRotors, Inc. of Gettysburg, Pennsylvania. Due to the lateness of our start the strength of the spray material was increased from the originally planned 16 B.I.U. to 20 B.I.U.



MASSACHUSETTS

CITY AND TOWN LINES

GYPSY MOTH DEFOLIATION
1984
308,599 A

Department of Environmental Management

The park spray was supervised and coordinated by Charlie Burnham with the help of Russ Larson, Paul Perodeau and Dick Kelliher. Invaluable assistance was also supplied by Rutland and Stow tree crews. A total of 4,797 acres were sprayed at a cost of $56,268.81 or $11.73 per acre.

Typical of B.t. spray programs to control the gypsy moth the results in both the community programs and our park were erratic. This can be illustrated by excerpts taken from reports concerning the spray projects submitted to this office:

"Favorable comments regarding control from the local superintendent of Mendon. Visual inspection showed much defoliation (50%-65%) but feeding activity was slowed appreciably."

"Does not have the ability to accomplish high percentage mortality in extreme populations."

"It is the feeling of the superintendent of insect pest control in Holden that the result of spraying with B.t. is not worth the results gained."

Concerning the spraying by the Town of Hopkinton. "I (Paul Perodeau) looked at trees with the amount of egg masses should have been 100% defoliated yet the foliage looked very good. The people I talked to were very satisfied with the results."

"The poor or erratic control exhibited throughout the sprayed areas indicate a single application is not appropriate to justify the expenditure involved, as where a double application, which exhibited better control, would become cost prohibitive and will result in a questionable cost to benefit ratio,"

4. COOPERATIVE STUDIES

For the past several years studies have been conducted, at our request, by the Entonology Department at the University of Massachusetts relative to the gypsy moth. Much of the raw, field data involved in these studies has been supplied by Bureau personnel. This work up through 1985 is summarized as follows:

Although a well defined IPM (integrated pest management) program for gypsy moth has not been developed, the research over the past few years has led to some useful techniques that can be used in gypsy moth management. Bacillus thuringiensis (B.t.) is still the recommended method to reduce larval densities. Treatment decisions should in part take into account the understanding that we currently have of B.t./virus interactions. In this regard, egg mass virus load estimates can be used to evaluate natural levels of virus and to predict crashes. Further, populations that are clean (of virus) and have been observed to be on the increase should be considered for treatment even though the levels have not yet reached defoliating levels. The compatibility of B.t. and parasites may be quite useful although no long term studies have attempted to document this.

Work continues in our effort to develop an early warning system which will allow us to predict the early start of a gypsy moth outbreak. The deployment of pheromone traps to attract and capture male gypsy moths and the attachment of burlap bands on the trunks of 20 trees in strategic spots across the state will allow us to carefully monitor low gypsy moth populations.

It now appears that the counts of egg masses under the burlap bands are a reliable predictor of next years defoliation at any given site but the traps still need adjusting to accomodate the numbers of male moths. The problem is that they are extremely attractive and fill up quickly. Reducing the number and size of the entrance ports appears to be the answer.

The reliability of this predictive tool should improve when we are able to reduce the numbers of captured male moths to manageable numbers. When that goal has been attained early signs of an impending outbreak should be easily recognizable.

5. PARASITES and PREDATORS

Collections of the important predator of the Gypsy Moth, Calasoma sychophanta, were made in Sutton, Wrentham, Rehobeth and Hudson for release as a starter colony on Cape Cod.

The release was made by District Supervisor Kelliher in an infestation in Falmouth where Calasoma has not been reported for many years. This release was made in June 1985. Monitoring of the site will take place in late spring and early summer of 1986 to determine if this attempt was successful.

Following the same format as in the past several years, Gypsy Moth egg masses parasitized by Anastatus disparis were field collected for future release in areas where the parasite is not known to be established. After the hatch and disposal of the caterpillars these egg masses were placed in infestations to allow natural emergence of the parasite which in turn will attack the newly laid egg masses of the Gypsy Moth. Egg masses were collected in Sutton, Upton and Wrentham in the fall of 1984 and evaluated by parasite emergence to determine the optimum collection site for the following spring. Purgatory Chasm in Sutton was the major collection site chosen. A total of 3,655 parasitized egg masses were collected.

To extend the parasite emergence period and to offset local weather conditions one half of the egg masses were refrigerated an additional three weeks. The masses were divided and given to the district supervisors in Berkshire County and on Cape Cod for placement in infested areas. Eighteen sites in the Berkshires and seventeen sites on Cape Cod received 1,900 and 1,700 parasitized egg masses respectively. The average emergence of the adult Anastatus was 67 per mass or 241,200. Egg masses will be collected from these sites in the fall of 1985 and evaluated at the Stow facility for the presence of the Anastatus.

In the fall of 1984 egg masses were collected from six of the eight release sites on Cape Cod. No masses were available for collection from two sites. Anastatus did emerge from the masses collected at the other six sites. In Berkshire County no emergence took place from any of the egg masses collected. This program will be continued in 85-86. More emphasis will be placed on Berkshire County in the coming year.

6. MORTALITY STUDY

The monitoring program for determining the mortality of host trees for the Gypsy Moth again showed a slight increase over the previous year.

District	#Trees	1982 #Dead	%	1983 #Dead	%	1984 #Dead	%	
1-20 plots	969	140	15.5	149	15.4	166	17.1	
2-14 "	1158	212	18.4	248	21.4	227	23.4	(10 plots 973 trees in 1984)
3-11 "	417	20	4.8	21	5.0	21	5.0	
4-10 "	341	41	12.0	67	19.6	79	24.8	
5-11 "	405	57	14.1	67	16.5	85	21.0	
6-12 "	356	29	8.2	34	9.6	35	10.4	(11 plots 337 trees in 1984)
7-20 "	739	109	14.8	117	15.7	124	16.8	
8-14 "	137	25	18.2	27	19.7	27	19.7	

In district two and district six five plots were lost due to construction. Data excludes plots in eastern Franklin county where the oak leaf tier complex infestation was heavy for several years. The mortality in that infestation has an average of 28.7% on red oak. On the plots established statewide subject to other defoliators the average is 17.3% mortality.

7. OAK LEAF TIER - ROLLER COMPLEX

The fall of 1984 sampling of red oaks in Franklin County and subsequent counting of the eggs by use of a microscope indicated the complex was increasing in Warwick and in Wendell. Additional samples were taken in Warwick and each indicated visible defoliation would occur in the spring of 1985. The aerial survey conducted on 6/19/85 showed defoliation in the towns of Northfield, Warwick, Wendell, Erving, Orange and Royalston for a total of 3,360 acres. The tier feeds mainly in the upper crown in lighter infestations making the injury more easily seen from the air than by ground survey.

A more perplexing situation exists on the south shore including most of Bristol and Norfolk Counties.

The aerial survey of 6/19/85 showed 355, 125 acres of defoliation in this general area. Immediate ground survey showed proper delineation of the defoliated areas and that the tier - roller complex and the gypsy moth co-existed in all areas to varying degrees. Following the ground survey and discussion with the past and present district supervisors it was estimated that the gypsy moth caused more than fifty percent of the defoliation on 173,281 acres in this area and the tier-roller caused more than fifty percent of the defoliation on the remaining 181,844 acres (Map B). A leaf roller tentatively identified as Archips semiferanus (Walker) caused much defoliation and now should be considered as an equal to the oak leaf tier in the complex.

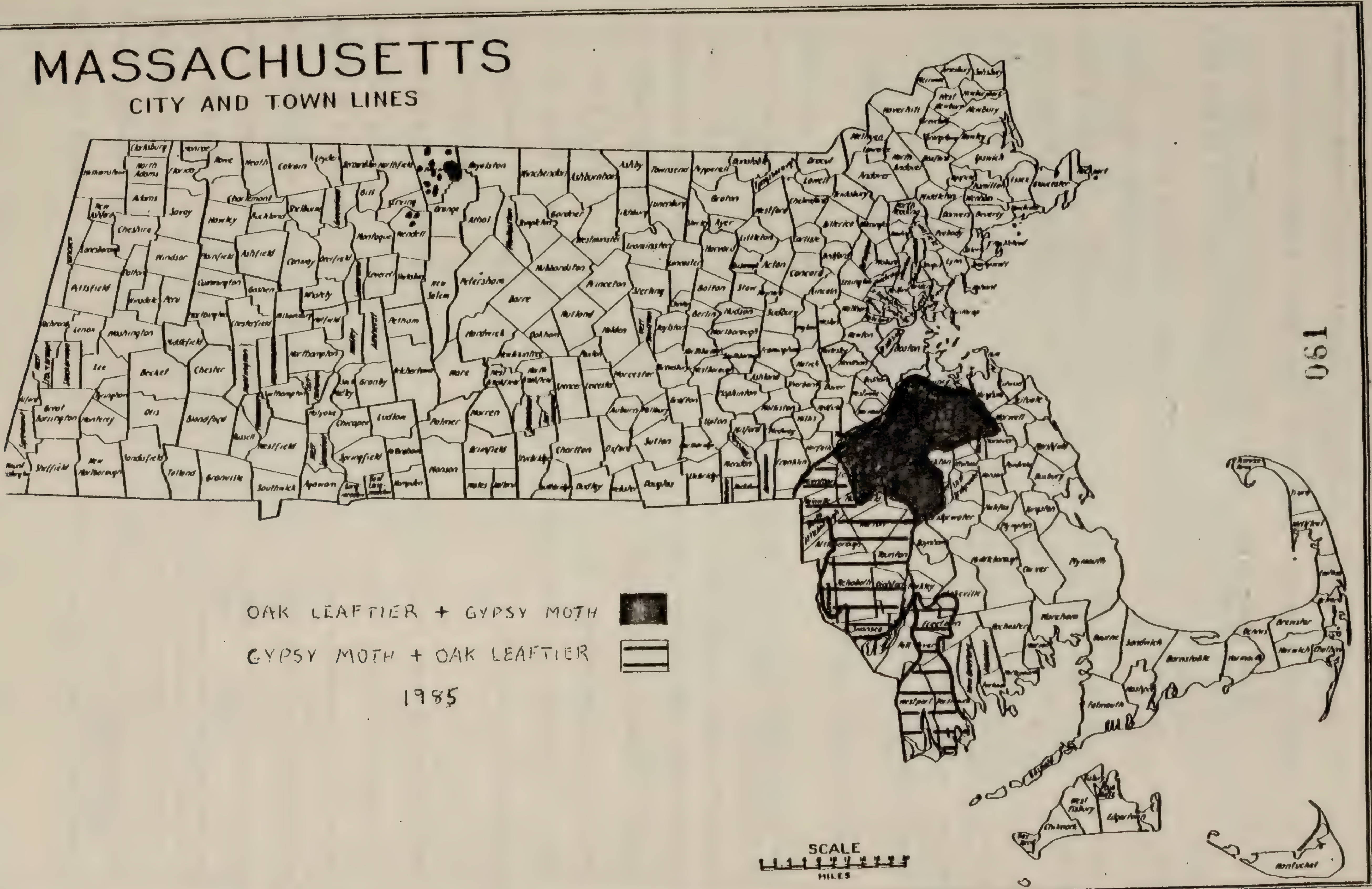
The area to be sampled and the number of sites will again be increased in the fall of 1985 to better predict the extent and severity of this problem.

As a result of egg surveys and laboratory analysis conducted in 1984 it was predicted that the extent and severity of oak leaftier would increase in Bristol and Norfolk Counites in 1985. Much of this area was also infested with gypsy moth. In order to clarify this situation, information concerning the subject was sent to the cities and towns in the area as well as foresters and others who might be concerned (See appendix and Map E).

8. RED PINE ADELGID SURVEY and EVALUATION

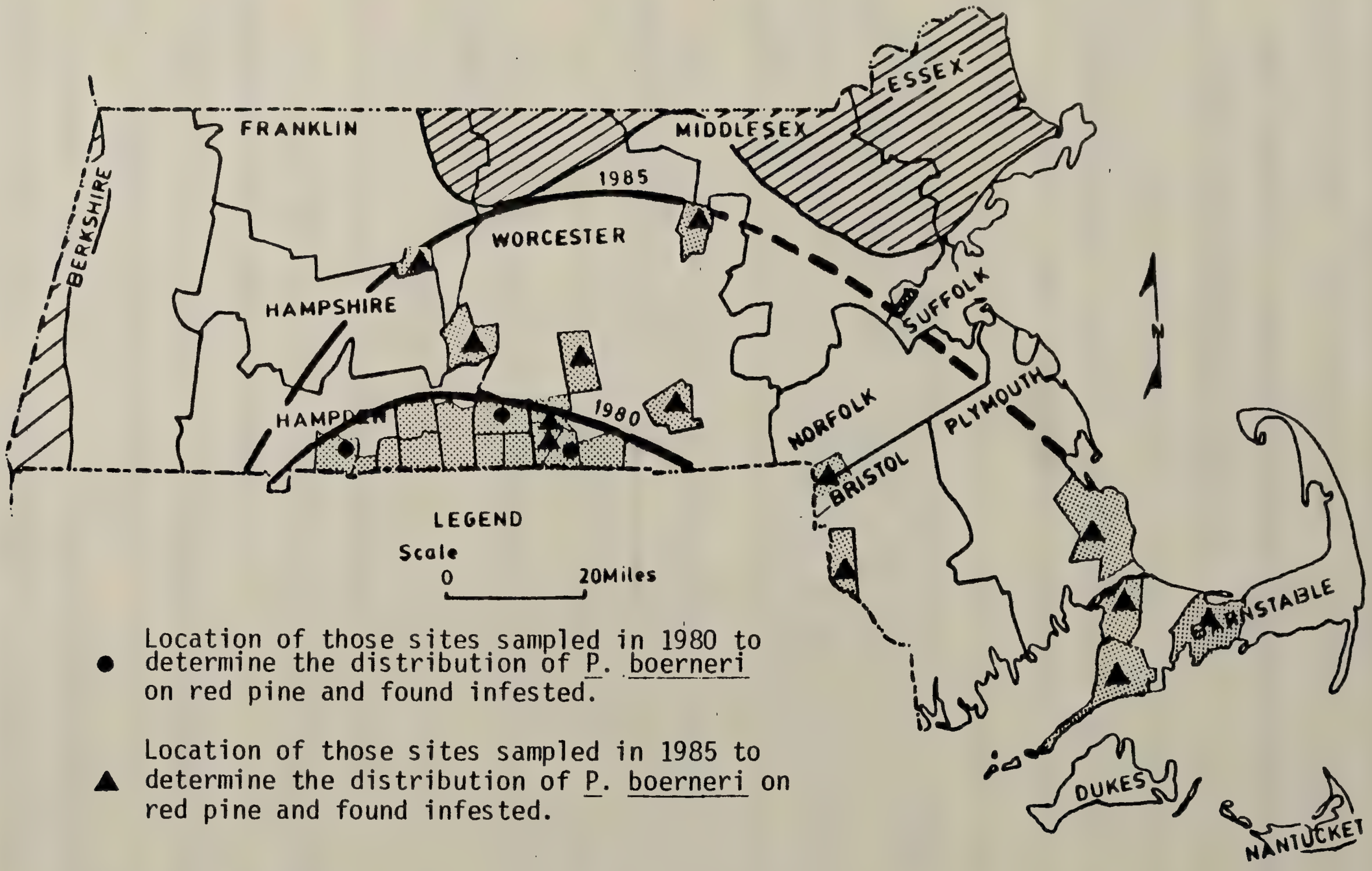
The red pine adelgid, Pineus Boerneri was the subject of a cooperative detection survey and evaluation with the U.S. Forest Service office in Durham, New Hampshire. The reason for the concern being that the infestation is spreading toward the natural range of red pine. The purpose of the survey was to delineate the leading edge of the infestation which bordered the Rhode Island - Connecticut state lines in the Commonwealth in 1980.

Fifty nine states were sampled out of a potential 94 site grid. Four branches from each of five trees at each site were collected. At the Stow facility, fifty bark flakes from three year wood were removed and examined under a microscope to determine the presence of any scale or adelgids. Specimens were counted and placed in seventy percent alcohol for delivery to U.S.F.S. Durham.



Department of Environmental Management

MAP C



● Location of those sites sampled in 1980 to determine the distribution of P. boerneri on red pine and found infested.

▲ Location of those sites sampled in 1985 to determine the distribution of P. boerneri on red pine and found infested.

▨ Southern tip of natural range of red pine in Massachusetts.

1985 Distribution of P. boerneri in Massachusetts

Fourteen sites were confirmed as having the adelgid Pineus boerneri. Many of the sites had heavy infestation of another adelgid, Pineus coloradensis, an innocuous pest of red pine. Pineus boerneri was found in samples from Ware, Shutesbury, Lancaster, Sturbridge, Spencer, Sutton, North Attleboro, Seekonk, Plymouth, Bourne, Falmouth, and Barnstable (Map C).

The red pine scale, Matsucoccus resinosae, was also a subject of this survey. No specimens of this pest were found.

Sixty four and one half days were spent in collection of samples and forty six days in speciment collection and delivery to Durham.

9. BROWN TAIL MOTH

This insect was accidently introduced into the United States about 100 years ago. It soon spread over much of the Northeast. Over the years, however, its range has diminished until it is now present in only the Casco Bay area of Maine and Cape Cod in Massachusetts. In the belief that endangered Lepidoptera may be harmed National Seashore authorities have made the decision not to spray to control the brown tail moth. This is unfortunate in that the major outbreak area in the United States is within the confines of the park.

Of concern to people living or visiting either in the park or in nearyby communities is the fact that contact with the caterpillars can cause a severe rash due to the hairs. Twenty to twenty five cases were reported to medical authorities during FY 1985.

10. EXCERPTS FROM DISTRICT REPORTS

From District 1 - Nantucket pine tip moth heavy in Falmouth, Yarmouth, Dennis, Eastham and Truro. Defoliation by fall cankerworm on Nantucket. Eastern tent caterpillar very heavy over the entire district.

From District 2 - Oak leaftier defoliation was very noticeable throughout Bristol and Norfolk Counties.

From District 3 - In general the overall conditions of the forests and shade trees look good. No infestation of gypsy moth could be found. Maple decline is widespread throughout many cities and towns.

From District 4 - Oak leaf skeletonizer appears to be increasing.

From District 5 - Mortality rates from reported gypsy moth defoliation continues to escalate in oak stands. The most dramatic losses occurred in Douglas State Forest, Purgatory State Reservation and Spencer State Forest.

From District 6 - The maple trees and the ash trees are very much in decline. The oak trees are still drying back from the top and we are still losing many of these trees in our forest and park areas. We cannot keep up with the pruning of deadwood out of the tops of these trees.

From District 7 - Oak leaftier skeletonizer appears heavy throughout the district. The horticultural unit at Amherst was assisted for seven days by the tree crew digging shrubs.

From District 8 - Fall webworm, Cheshire, Lanesboro, Adams, very heavy; springy elm caterpillar, Mt. Greylock summit and campground, moderate; mountain ash sawfly, Mt. Greylock and New Ashford, heavy; ash dieback County wide and serious.

11. TREE CREWS

It was noted in the 1984 Annual Report that a serious condition existed on our parks and recreation areas. A survey conducted during that year indicated a total of 2,369 trees were in need of pruning to remove hazardous limbs. The survey also indicated a total of 997 trees, either dead or dying, that needed to be completely removed.

Along with other duties assigned to them, the crews began to concentrate on these problem trees. Despite the fact that they are under-staffed the tree crews removed a total of 1839 trees on Department property.

Included in this total were many of the hazardous trees in the immediate vicinity of the intensively used recreation areas, power line clearance, site preparations and logging jobs.

In the latter part of the year a natural disaster struck the Town of Warren and to a lesser degree the Town of Ware. A sudden windstorm closely resembling a tornado moved quickly through these communities. Many trees were uprooted and snapped off. The Department immediately responded with personnel and equipment. The Bureau tree crews and specialized equipment played a major role in the clean-ups. A total of seven days were required to complete the job.

Another important function performed by the tree crew personnel was that of assisting communities in their aerial spray projects. This work included monitoring, marking spray boundaries, assisting at loading areas, etc. This activity included early rising and long hours.

12. PERSONNEL CHANGES

F.Y. '85 saw a number of personnel changes within the Bureau. Most of the changes came about as a result of the retirement after 32 years of service of Ed Lalli. Ed was District Supervisor covering Hampton and Hampshire Counties. Charlie Burnham laterally transferred from District 4 to the vacant district. Paul Perodeau then transfered from District 2, Bristol and Norfolk Counties, to District 4. Joe Lokitus, then Foreman for the Foxboro tree crew, moved into the vacancy created by Paul's move. Richard Beaudet, tree climber on the Foxboro crew, then moved into the vacancy created by Joe's move. An attempt is now being made to find a tree climber candidate to fill behind Beaudet.

We were very fortunate to being able to partially fill the Berkshire crew which for a time had no personnel. During this year we were able to obtain the services of Ken Gooch as foreman and Tim Zelazo as tree climber. They are both excellent additions to the Bureau.

ANNUAL REPORT

1985

BUREAU OF FIRE CONTROL

CHIEF FIRE WARDEN - ANTONIO CASTRO

ASSISTANT CHIEF FIRE WARDEN - PATSY G. BISCEGLIA

INTRDUCTION

In F.Y. '85 the bureau experienced one of its busiest Fall and Spring fire seasons in recent memory.

The summer drought which extended into the late months of 1984 contributed to the increase in the number of fires and increased calls for assistance from area fire departments. There were two major fires during this period one in the town of Monson in Hampden County and one on October Mountain, in the Berkshires.

In both instances the Army National Guard supplied water drops and did yeoman-service in containing these fires.

The October Mountain fire was noteworthy in that the aerial observer who was asked to leave this Connecticut Valley flight pattern to evaluate the fire for District Fire Warden Messer crashed. He survived and was able to walk away and direct rescurer's to this location.

The lack of precipatation continued throughout early 1985 and contributed to an extremely early and busy Spring fire season.

All areas of the state experienced more fires some of which were more difficult to extinguish due to their deep burning characteristics caused by the low water table that left the forest floor devoid of moisture. (See charts for fire trends)

The Bureau has maintained a positive posture throughout the year in all phases of its reponsibilities. It has spearheaded the Safety Committee and is in the forefront in the implementation of the Right To Know Law.

Safety Committees continue to meet monthly to resolve safety problems in their respective areas. Rollover money has been allotted to each Region's committee to enhance employee safety in the workplace.

Fred Heyworth, IPC Supervisor, has provided a chainsaw safety program which will be duplicated for each region.

The Right to Know Law has been implemented throughout the Division of Forests and Parks. The mandatory workplace notices have been distributed and are in place. Each region was visitied by an instructor from the Massachusetts Fire Fighting Academy who explained the law and the employees rights under the law to receive information about the chemicals used in the worksite. Material Safety Data Sheets listing the pertinent information of the chemical has been placed on file at each regional office. The Safety Committee Chairman has the responsibility for maintaining the file.

FY' 85 PROGRAM REPORT

1. FEDERAL EXCESS PROPERTY PROGRAM

. The Federal government authorized the Department of Agriculture through the United States Forest Service to enter into an agreement with the Commonwealth of Massachusetts and its designee, the Department of Environmental Management, Bureau of Fire Control, to administer the Excess Property "Pass Through" Program. This program has generated a tremendous amount of interest from the rural fire communities in the Commonwealth.

Since the inception of the program in November of 1980, 161 rural communities have entered into agreements with the Bureau of Fire Control to accept federal excess property under the terms set forth by the U.S. Forest Fire Service, the General Service Administration, and the Massachusetts Bureau of Fire Control. This reflects an increase of 13 communities from fiscal 1984.

In fiscal 1985 excess property from the federal government was in heavy demand by the rural fire communities to every county. Communities who acquired property put a tremendous amount of effort in rehabilitating the same. Tank trucks, fire trucks, pick-up trucks and generators were beyond many small communities economic goals. These same pieces of property could not be purchased new.

By aquisition through the "Pass Through" Program many communities were able to fulfill the fire protection needs that citizens demanded at no cost to the particular town.

The towns receiving property in fiscal 1985 are as follows:

Rural Fire Community	Excess Property	Dollar Value
Belchertown	Diesal Generator	$6,008.00
Rehoboth	Gas Generator	2,385.00
Uxbridge	5,000 gal. truck tractor tanker	34,802.00
Milford	" "	34,802.00
Yarmouth	Oshkosh Air Field Truck Plow	40,209.00
Middlefield	1,000 Gal. Tank Truck	4,000.00
Athol	pick-up truck	2,500.00
Holden	24,000 Gal. Tank Truck	55,421.00
Hawley	Fire Truck 1965 Int. Harv.	11,500.00

Rural Fire Community	Excess Property	Dollar Value
Dighton	Air Compressor	$2,500.00
Ludlow	Xerox Copier	23,959.00
Orange	4 dr. Plymouth Sedan	7,284.00

Over 100 communities received many items of excess property this past fiscal year. Desks, chairs, filing cabinets, book cases, storage cabinets, typewritiers, vacuum cleaners, fire protective clothing, shop equipment and small tools were many items in demand by small communities. The approximate dollar of all excess property transfered to RFD's in fiscal 1985 totaled $310,870. Since the inception of the "Pass Through Program" in 1981 a dollar value of $1,051,151 in excess federal property was transfered to the rural fire communities of the Commonwealth.

Items of excess property transfered to the 5 regions under the auspices of the Division of Forests & Parks were as follows:

Region	Excess Property Dollar Value
I	$54,485.00
II	12,197.00
III	15,573.00
IV	12,155.00
V	7,650.00

This past fiscal year the Bureau screened and acquired $477,184.00 dollars worth of federal excess property that was transfered to rural fire communities and to the five regions under the Division of Forests and Parks.

The Bureau has administered the Excess Property Program since the 1960's when the U.S. Foest Service enabled the states to use their high federal priority to acquire property that would improve the state's fire protection capabilities.

The present dollar value of the Excess Property Inventory is $2,734.856.00 an increase of $477,184.00 from fiscal 84.

2. PREVENTION PROGRAMS

The Bureau of Fire Control personnel receive many requests to visit elementary schools throughout the year. With Smokey in attendance, our personnel presented many seminars pertaining to fire prevention at a most critical state of their inquisitive life.

Smokey has played a major role reducing forest fires over the past 42 years. In 1942 more than 10 million acres of our woodlands was burned or destroyed. In 1983 only 3 million acres were reported burned. This was a savings to the American people of over 20 billion dollars.

In Fiscal 1985, 617 Smokey Prevention Programs were administered in every Bureau district in the state. We were able to reach approximastely 18,510 young elementary school children. We disseminated over $7,000 dollars worth of Smokey Bear Prevention material. Our programs were also administered to older citizens at parades and community functions. Smokey also made appearances at the Franklin County Fair Parade and Conway Fall Festival Parade.

Big "E" - Smokey the Bear Participation

Bureau personnel were present throughout the two week period for Smokey's scheduled appearances at the department's fine display.

Another important prevention program is the issuing of criminal citations and warnings to individuals in violation of the Massachusetts Forest Fire Rules and Regulations and M.G.L. Chapter 132 pertaining to Forest Cutting Practices. We issued 454 citations and warnings in Fiscal 1985. This was an increase of 90 warnings and citations over Fiscal 1984. District 10 in Hampshire County issued 198 Chapter 132 violation warnings and 14 fire law violation warnings.

The inspection of logging operations takes up a great deal of the District Fire Warden's and Forest Fire Patrolman's work day. The new Forest Cutting Practices Law has increased the responsibility of these key personnel. In Fiscal 1984, we had 1,876 logging operations. This past fiscal year we inspected 2,793 sites. This increase of 917 inspections reflect the active role the Bureau is playing to insure that the letter of the law is followed on Commonwealth and Private landowner woodlots. Fire District 12 experienced 599 logging inspections this fiscal year. The inspection system serves a two-fold purpose; it establishes uniform fire minimizing standards with loggers, and it familiarizes our fire personnel with fuel conditions and terrain they might not ordinarily be aware of.

The Bureau continues to periodically distribute fire prevention and training materials to the Fire Districts for integration into their programs.

Committees have been formed to coordinate the various responsibilities of the Bureau. They include: Training, Prevention, Federal Excess Property, Weather, Communication, Inventories, Reports, Equipment, Law Enforcement, Safety, Supplies and Uniforms.

The Bureau also plays a very important role in fire prevention during the annual Fire Prevenion Week in October. Many rural fire communities request our assistance during this period.

SMOKEY BEAR POSTER CONTEST

Each year the Bureau of Fire Control in conjunction with the Garden Club Federation of Massachusetts conducts a Smokey Bear Poster Contest with the Cooperation of the Massachusetts Department of Education. School children in kindergarten through junior high grades are eligible to compete for the State award, Regional award and National award. We honor 6 state winners each year. Massachusetts had the distinction of having 3 entries gain Regional honors and Mrs. Beulah DiPoli from Needham also achieved the highest honor in the Senior Citizen category by winning the National honor with her Smokey prevention poster.

On May 1, 1985 Governor Dukakis honored the poster winners and their families in the Governor's office with a citation of Merit from the State of Massachusetts.

This annual visit with the governor has proven very popular in Promoting the Bureau's Smokey Bear Program.

3. PRESCRIBED BURN

In March of 1985, the Bureau of Fire Control assisted with the prescribed burn at the Camp Edward Impact Range. The fire personnel from Region I and other Division of Forests and Parks personnel manned the fire equipment at the scene. The area burned consisted of 850 acres that were not burned in the 1984 burn when time constraints and weather conditions precluded burning of the original 1,300 acres that were targeted at that time.

This was the second year the Bureau was able to control burn the impact range, which for many years has been a suppression problem for both the Bureau and area rural fire communities. Prescribed burns during the early spring when weather conditions and wind conditions are favorable to this operation has benefited all fire suppression personnel in the area.

4. PREVENTION AND TRAINING

The training of Bureau personnel is an ongoing program within the individual fire districts to sharpen the skills and improve the fire behavior knowledge of the year-round and seasonal personnel. Training sessions have also been conducted inter-district to familiarize personnel with specialized equipment, fuel load and/or topographic characteristics that may vary from one district to another. This past fiscal year the Bureau had 672 in-house training sessions and 336 training sessions with other bureau and rural fire districts.

Statewide training was institutued for Division personnel to qualify them as inter and intra state fire fighting crews. Instructors were drawn from the Department's branches utilizing their expertise wherever called for in the lesson plans of the Basic Firefighter and Fire Behavior courses.

The Bureau of Fire Control in conjunction with the United States Forest Fire Service and its Northeast neighbors attended various conferences, seminars and training sessions during this past fiscal year.

5. NORTHEASTERN FOREST FIRE PROTECTION COMMISSION (Compact)

The Northeastern Forest Fire Protection Commission (COMPACT) is comprised of forest fire personnel from Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, and the Provinces of Quebec and New Brunswick from neighboring Canada. This commissison is referred to as the "COMPACT". Whenever a wild forest fire rages uncontrolled and threatens to exceed resources of a member state, other member states are prepared to respond with fire personnel and fire apparatus to assist in the suppresssion of wild forest fires. Annual training exercises are held in February to instruct compact crews in the latest advances in forest fire control and how to react to emergencies.

The Northeastern Forest Fire Protection Commission training seminar was held in Concord, New Hampshire on February 4 through February 8. The theme of the meeting was "Forest Fire Investigation and Cause Determination". District Wardens Sakaske, Bennett, Messer, Faustino and Tirrell attended along with the Chief and Assistant Chief.

Compact Equipment Committee Meeting - Report by William Bennett

An Equipment Committee Meeting was held during the Winter Compact Training Session in Concord. We discussed the upcoming Pump School in Essex Junction. We also discussed the Water Handling course, planned for Mt. Mansfield in August. During the Pump School we held another meeting with people from the Equipment and Training Committee and Mr. Richard Mullavey, Director of the COMPACT Commission, to prepare training dates and sites.

The State of Maine hosted the Annual Equipment Meeting at the Maine Forest Service District Ranger Headquarters, Route 16, Oquossic, Maine on June 3, 4, and 5, 1985. All members and Mr. Mullavey were present.

FIRE SUPERVISOR'S CONFERENCE

The Northeastern Forest Fire Protection Fire Supervisor's Conference was hosted by the State of Massachusetts in Holyoke and Chicopee on July 31 through August 1, 1984. Training dates were established for COMPACT fire personnel for 1986 and 1987. Fire Supervisors met with the COMPACT equipment and training committees to formulate fire equipment meeting dates and water handling sites and dates.

6. PRE-SUPPRESSION - CONSTRUCTION - MAINTENANCE PROGRAMS

Every fiscal year our maintenance reports show a considerable amount of dollar damage to our tower detection system by vandals. Fiscal year '85 was no exception. A considerable amount of man-hours and money was expended in the rehabilitation of destroyed tower structures and tower cabins. All Repair and construction work was performed in-house by our Fire Construction Maintenance Crew headquartered at Brimfield State Forest.

The following schedule indicates tower rehabilitation and preventive maintenance at many of the Bureau 's fire installations.

Goshen Tower - Hampshire County: New power lines and electrical service, rehabilitated cabin.

Savoy Tower - Berkshire County: Repairs completed after being vandalized.

Falmouth Tower - Barnstable County: Tower cabin razed. Replaced with new tower cabin.

Lancaster Field Office, N. Worcester County: Antenna and Radio installed.

Brimfield State Forest - Hamden Couty (Crew Headquarter): - Fabricating new tower cabins. Cutting lumber, constructing new files and storage bins.

Norwell Tower - Plymouth County: Installed new windows on tower cabin.

Freetown Tower - Bristol County: Tower structure painted.

Sandwich Tower - Barnstable County: Installed new roof.

West Brookfield Tower - S. Worcester County: Electrical repairs.

Erving S.F. Radio Tower - Franklin County: New weather instru-installed.

Sunderland Tower - Franklin County: New roof installed, windows caulked and added new flashing.

Shelburne Tower - Franklin County: Repaired power lines.

Ludlow Tower - Hamden County: Repaired vandalism on cabin and power lines.

Pelham Tower - Hampshire County: Installed antenna.

Montery Tower - Berkshire County: Roof repairs on cabin.

Lenox Tower - Berkshire County: Flashing repairs on cabin roof.

The construction crew worked many man-hours in many state parks throughout the five regions. Included were power line construction, telephone line construction, refurbished Skinner Summit house, weatherization project at Brimfield, fabricating tower cabins at Brimfield, fabricating fireplace grates, constructed picnic tables at Warwick, wired hydraulic lift at electrical wiring projects at Erving S.P. and Carlisle Regional Headquarters and many other areas within the state.

The construction crew performed many specialized construction projects which enabled the Division to save thousands of dollars in labor if otherwise contracted out to private corporations.

The Bureau's fire personnel spent considerable manhours maintaining and servicing and constructing fire roads on state owned land. Over 232.5 miles of road work was performed during the off-fire season. Many manhours were spent dredging, cleaning and clearing many fire ponds and water holes.

This past recreation season the Bureau's fire personnel assisted many recreation sites in preparing for the summer recreation season. Many areas were unable to hire seasonal personnel until late into the season due to budgeting constraints. By the same token during the fire season the Bureau receives tremendous cooperation from the other Bureaus in fire control activities.

7. DETECTION

The detection system in Massachusetts is still provided by a combination of aerial observation and ground observation stations. In the counties east of Worcester County, ground observation stations are maintained and operated by the Commonwealth.

This system is backed up during periods of high fire danger in Plymouth and Barnstable Counties by county supported planes. In the western counties and including North Worcester County, a combination of ground observation and aerial observation is utilized and supported entirely by the state.

The flight pattern for DEM, Region III, South Worcester County, has been eliminated in order to increase the frequency of aerial detection flights over Northern Worcester County which has a high forest fire frequency. There were two additional towers manned in South Worcester County in order to shorten flight patterns. Flight pattern #3 limitations include West Boylston to Fitchburg, northwest to Royalston, and south to Hardwick, all in the Northern Worcester County area.

Flight pattern #4 in Franklin, Hampshire and Hampden Counties, DEM, Region IV, has been similarly condensed from an "A" type aerial flight pattern to a rectangular flight pattern. This extends from Russell in Hampden County north to Leyden in Franklin County, and proceeds south to Blandford in Hampden County.

Flight pattern #5 in Berkshire County, DEM, Region V remains the same as in the past. From New Marlboro, north to Clarksburg, northwest to Williamstown, it then proceeds south to Sheffield. On extreme fire danger days, a fourth flight pattern will be activated between Northern Worcester County and the existing flight pattern in Region IV. This in effect will give us the maximum forest wild fire protection for our woodlands.

We spend considerable time training fire tower observers to pinpoint the exact location of fires. This vital information is relayed to the rural fire dispatchers who in turn activates the suppression forces in their particular town.

The Bureau plays a very important role in assisting many small rural communities in all types of wild fire training. Immediate detection and response to incipient wild fires contribute to the reduction of acres burned and property lost.

In keeping with Director Bliss' request for sustained fire patrol acitivity, the Bureau's Forest Fire Patrolmen have logged a total of 616,570 miles. This reflects a mileage increase of 156,105 miles over Fiscal 1984. The Bureau's fire tower observers detected 3,662 fires which were reported to rural fire departments in their jurisdiction.

With 43 active fire towers and a statewide communication system, the Bureau is able to offer rural fire communities an invaluable asset in wildland fire fighting necessities.

MASSACHUSETTS FOREST FIRE COUNCIL

The Bureau has a very important role with the rural fire communities, forest wardens and fire chiefs of the Commonwealth who make up the Massachusetts Forest Fire Council. Quarterly, the Chief and Assistant Chief Fire Warden and thirteen District Fire Wardens attend these meetings.

A progress report of the Bureau's activities is presented to the Council by the Chief Fire Warden. The Bureau's function is to aid and respond to requests of the rural fire departments during wild fire emergencies.

8. SUPPRESSION

The Bureau is mandated by law to assist rural fire communities in the suppression of wild fires. On many occasions during multi-alarm fires, our personnel not only assist in the suppression of wild fires but will also man fire stations to assist in dispatching fire information to other towns if the need arises.

Our fire tower detection system relays to the rural towns exact locations of fires detected which creates an immediate response situation to the emergency. This immediate response of fire apparatus to the scene minimizes the danger to lives and property.

Active Fire Season

October will long be remembered as one of our most active fall fire seasons in many years. Due to the forty days devoid of moisture, all the conditions for a dangerous fall fire season came into play. The two largest fires (Monson over 300 acres and October Mt. over 500 acres) took several days to extinguish. The use of Air National Guard helicopters in assisting the Bureau's suppression activities was a historic event. They proved very beneficial in suppressing wild fires inaccessible to normal ground fire fighting operations. Fire report critiques are attached to further explain the techniques the Bureau used in combating these wild fires.

The following fire statistics reflect the important role the Bureau plays in the overall scope of detecting and suppression of wild fires in the Commonwealth. Without the Bureau's professional fire fighting assistance to the many cities and towns in the Commonwealth the loss of valuable forest and timber products would be catastrophic. Other routine functions were also performed in conjunction with suppression activities.

	October , 1984
Fires detected by towers	436
Assistance to cities and towns	282
Acreage burned	1,987.25
Miles patrolled	51,194

SPRING FIRE SEASON

Due to the low amount of precipation that was experienced this past winter, our fall fire season carried right over to spring. Fire reports were being received in the radio room in Boston at an alarming rate by the third week in March.

On Sunday, March 24 numerous brush fire reports were being recorded by the Boston Radio Room. By Sunday evening, March 31, 906 fires were reported with an estimated 5,280 acres burned . This was one of the busiest fire weeks for the Bureau in over 20 years. The Deputy Chief Fire Warden assumed the position of Fire Information Officer, forest fire statistics were disseminated to the news media, D.E.M. Public Relations Bureau, and the Director of Forests and Parks. Our fire personnel in the field did a remarkable job in assisting rural fire communities and passing the fire information reports to the Boston Radio Room. The Radio Room did an excellent job in getting accurate fire information to the Fire Bureau and to the Director of Forests & Parks.

Some of the major fires in our Class "D" rating system, occured in Milford, South Worcester County (100 acres plus), Peabody, Essex County (200 acres plus), Charlemont-Rowe, Franklin County (200 acres plus), Lynn, Saugus, Burlington, Middlesex County (300 acres plus). Other fires which could have created serious problems occurred in West Barnstable in Barnstable County, Ames Nowell S. P. in Abington, Plymouth County, Skinner S.P. in Hampshire County, Agawam in Hamden County, Blackstone Heritage S.P. in Northbridge, South Worcester County,Lincoln and Concord in Middlesex County, Swansea (25 acres) in which ignited 1,000 gallons of alcohol in which 60 acres of woodland burned and over 3,000 people were evacuated from their houses, jobs and schools.

The highlight of that week was the detection system we incorporated in the state with our fire tower network. A large percentage of the fires which occured in the stated during that past week were reported to the RFD's by our tower observers. A most remarkable accomplishment.

The following is a report of forest fires by classes and total estimated acreage burned. Dollar damage has not been completed as of this report.

Class Fires	From Sunday, March 24 to Sunday, March 31	
	Fires Reported	Acreage Burned (est.)
A - ¼ acres and less	635	160
B - .26 acres to 9.9	235	1810
C - 10 acres to 99.9 acres	31	1860
D - 100 acres to 299.9 acres	5	1450
E - 300 acres to 999.9 acres	906 TOTAL FIRES	5280 TOTAL ACRES
F - 1000 to 4999.9 acres	REPORTED	BURNED
G - 5,000 acres or more		

The fire season continued into April and May without any signs of relief from atmospheric conditions. Ground fuel was extremely dry and ground fires were very hard to suppress. Precipitation for April was an all time low. Lack of moisture and windy days kept our fire personnel busy on our own forest lands and assisting the rural fire departments upon request. Fire Districts in Plymouth, Bristol, Norfolk, Essex, Middlesex, Hamden and Hampshire counties reported the largest amount of fires during the month of April. All fire personnel should be commended for performing their duties in a very professional manner.

FIRE ACTIVITY STATISTICS	April, 1985
Miles Patrolled	52,603
Fires Detected - Towers	1,568
Total Fires	2,607
Acreage Burned	4,692

Fires reported for April were 1,000 more than the previous month. Acreage lost was 2,483 less than the previous month. Immediate detection and quick response action and rapid suppression work by the RFD's and the Bureau personnel decreased acreage loss. Our towers detected and reported better than half the total fires which occured throughout the Commonwealth.

Fires continued to burn into May.

May: Fires Reported - 1,177 Acreage Burned - 2,039

9. RURAL COMMUNITY FIRE PROTECTION

The Federal Rural Community Fire Protection Act provides additional funding to fire departments with the responsibility of protecting communities with a population of 10,000 or under. It is specifically designed to provide some additional financial assistance to these departments to increase their level of fire protection to the community. Prior to 1980 - 1981, this funding was traditionally utilized toward the maintenance and/or purchase of equipment or apparatus. However, since 1981 the emphasis has been directed toward training through an agreement with the Massachusetts Fire Academy.

The Massachusetts Fire Academy provides fire training for the 198 communities in the Commonwealth with populations under 10,000.

In FY 85 the Fire Academy conducted 79 programs in 105 communities with 1,575 students successfully completing the courses of instruction.

In addition, the Fire Academy has worked with the Bureau to develop a slide-tape training program dealing with wildfire suppression which will be used in-house and with municipal fire departments and divisional personnel.

The Federal (RFP & C) Rural Fire Prevention and Control Program (old CM-2) has changed the way funds are allocated to the states as a direct result of Congress's insistance that new approaches is needed for the distribution of federal funds.

Justification that a proposal is in the "national interest" or "assists the forest service achieve their goal" is the yardstick used to gain approval of state proposals.

Federal FY'85 is the last year for the Bureau's grant for an Assistant Chief Fire Warden and for federal grants as we have known them.

Fiscal Year 1985
Annual Report
Bureau of Urban Services
Robert E. Freedman

Introduction

Fiscal Year 1985 was exciting for all persons involved with the Bureau of Urban Services. The Bureau was almost fully staffed and six Heritage Parks provided daily programming for the visiting public. Fall River, Gardner, Holyoke, Lawrence, Lowell, and Western Gateway Heritage Parks were either fully or partially operational by June 30th.

The Bureau assumed direct responsibility for the management of the Boston Harbor Islands State Park. This bustling and diverse park is looked upon as being a key transportation link to a number of future Heritage State Parks - Dorchester/Lower Mills, and Lynn, as well as continuing to provide the recreational services that island visitors have come to expect. This past year saw increased law enforcement protection through and agreement within the Metropolitan District Commission, and more dependable boat transportation.

Dunns Pond, a rural component of the Gardner Heritage State Park, was refilled with water thus making a beautiful natural area used by park staff to conduct nature walks and Jr. Ranger programs. Future programming includes: fishing, picnicking, ice skating, swimming, and boat rides.

Western Gateway Heritage State Park opened in the Spring of 85 in the restored North Adams Railroad Yard. This park along with rural Natural Bridge State Park experienced high attendance figures despite the fact that they were not fully staffed and the commercial buildings at Western Gateway were not yet open.

Natural Bridge State Park, after having extensive rehabilitation work (eg, comfort stations, picnic area, vehicle bridge), opened for the 1985 summer season and provided the public with a clean and peaceful area to enjoy a natural wonder.

Expanded Bureau Staff

The Boston Office of the Bureau was completed with the hiring of a Senior Clerk, Administrative Assistant, and Assistant Chief. In addition to these positions, the Legislature approved the job titles of Horticulturist and Graphic Artist. Dawn Perry and Terri Talas, respectively, were hired to fill these positions and they are using the Lancaster Field Office as a base. Each of the "on-line" Heritage Parks also added at least one additional staff person.

Park Visitation

With six Heritage Parks conducting programs the attendance figures increased dramatically. An ambitious promotional campaign in conjunction with the Department of Commerce and Development, helped to promote the parks and their programs.

Boston Harbor Islands and Pilgrim Memorial State Parks saw consistently high visitor numbers. This being the first year that the Annual Report uses Plymouth Rock attendance figures, a dramatic increase should be seen. For attendance figures, see Appendices in the Bureau of Recreation section.

Buildings and Grounds

New equipment (tractors, lawn mowers, edgers, etc.) was purchased for each of the Heritage Parks from a Furnishings and Equipment Bond appropriation. These state-of-the-art products have proven to be extremely helpful in cutting down the number of hours required to perform various tasks, as well as increasing productivity for "Grounds" staff.

One goal of the Heritage Parks is to keep the Buildings and Grounds looking their very best. Pruned trees, manicured lawns, and full flower beds are eye-catching and pleasing thus helping to achieve our goal of well-maintained parks.

In order to assist each of the Heritage Park Building and Grounds Supervisors, a maintenance workshop was arranged to introduce them to some of the finer points of park maintenance. Professor Joseph Troll from U. Mass/Amherst, using slides, discussed the basics of turf/lawn care. Dawn Perry, Bureau Horticulturist, discussed flower bed preparation and care. Product representatives demonstrated the proper use of the new equipment purchased - including steam cleaners and one of its many uses will be to maintain hard (concrete, brick, etc) surfaces in the urban parks.

Park Planning/Exhibit Design

Planning and engineering teams were hired for the following future Heritage State Parks: Blackstone River and Canal; Dorchester/Lower Mills; Roxbury; and Turners Falls. Much progress has taken place over the year with preliminary design completed for some parks and actual acquisition in others.

Exhibit design at Gardner, Holyoke, Lawrence, and North Adams Heritage State Parks was in various stages throughout the year. All four parks hope to have their individual exhibits installed and operational in FY 86.

Park/Exhibit Openings

Parks which opened during FY 85 were: Gardner - Dunns area; Fall River; Lawrence - Pemberton Park; and Western Gateway (Natural Bridge).

Dunns Pond in Gardner was re-filled with water thus providing a beautiful setting just minutes from downtown. Though unable to be used for swimming or fishing due to construction, the picnic area, exercise equipment, and nature trail are enjoyed by many.

Fall River Heritage Park officially opened in August of 1984 with Governor Dukakis in attendance.

Pemberton Park in Lawrence is a peaceful and beautiful setting to enjoy a lunchtime concert or walk along the Merrimack River. This component of the Heritage Park was opened in FY 85 and quickly became a popular spot for local residents as well as a starting point for park tours.

Natural Bridge in North Adams, which became a component of the Western Gateway Heritage Park, opened to the public in the spring with upgraded toilet facilities, new picnic area, and interpretive programming.

Exhibits opened in Fall River and Lowell. The history of fabric making in Fall River and the use of water power in Lowell are the themes for these "permanent" exhibits which will enhance each park visitors stay.

Programs

A formal program planning system was implemented on a seasonal basis. Programming falls into two general categories: Recreational and Interpretive. Examples of each are: Kite festivals, magic shows, learning about rural forests and parks, living history, Junior Ranger program, walking tours, etc.

At Fall River and Lowell, the "learn-to-sail" program continued with more sailboats being added at both parks. Fall River's staff provided the sailing instruction and the "Friends of Fall River Heritage State Park" operated the paddleboat concession. In Lowell, the Greater Lowell Community Sailing Program provided sailing instruction and the University of Lowell conducted a public rowing program.

Private concessionaires operated excursion boats on the Taunton and Merrimack Rivers. These boats provided narrated tours explaining the history of Fall River and Lowell and how these rivers played a part in each city's development.

Future Initiatives

The FY 86 Expansion budget has a request for an Urban Forester position as well as funding for a Recreation and Technical Assistance Program. Both requests, if funded, will assist communities with the maintenance and management of Municipal Recreation Programs. Management responsibility will be within the Bureau of Urban Services.

The Heritage Parks continue to grow with new parks in the planning stages and existing parks being completed. In order for these parks to succeed, programming and the physical site must meet a high standard of quality. Therefore, on-going workshops for Visitor Services and Maintenance staff will be conducted throughout the coming year.

New to the Bureau (FY 86 only) will be the hiring of a consultant to assist park staff in making the Heritage Parks completely accessible for all persons. This program will concentrate on individual staff needs and how to integrate the handicapped community into future park programming.

Lowell Heritage State Park will have the added responsibility for maintenance of the locks and canals, and Lawrence Heritage Park will be encouraging residents to grow and display cut flowers at weekly flower markets. These, along with weekly concerts, and tours, slides shows, lectures, festivals, crafts fairs, plus a special feature at Lawrence Heritage Park - a puppetry theatre - should make FY 86 another good year for the Heritage State Park System.

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APPENDIX A

INTERPRETIVE PROGRAM ATTENDANCE

1985

FACILITY	# OF PROGRAMS	# OF PARTICIPANTS	AVG.
REGION ONE			
Boston Harbor Island S.P.			
Bumpkin Island	100	790	8
Gallops Island	59	493	8
Grape Island	100	1174	12
Great Brewster Island	15	183	12
Dighton Rock	Museum Visitors	800	n/a
Massasoit S.P.	93	888	10
Myles Standish S.F.	135	2576	19
Nickerson S.P.	165	3475	21
Shawme Crowell/ Scusset Beach S.R.	108	607	6
South Cape Beach/ Washburn Island S.P.	43	491	11
Wompatuck S.P.	75	650	9
Pilgrim Memorial	N/A	19,460	
REGION TWO			
Harold Parker S.F.	110	700	6
Salisbury Beach S.R.	59	1779	30
Plum Island S.R.	76	780	10
Walden Pond S.R.	233	2831	12
REGION THREE			
Douglas S.F.	125	1981	16
Otter River S.F.	126	1437	11
Wells S.P.	86	1187	14
REGION FOUR			
DAR S.F.	121	1940	16
Mohawk Trail S.F.	83	953	11
Holyoke Range/ Skinner S.P.	131	2926	22
REGION FIVE			
Mt. Greylock S.R.	48	616	13
Pittsfield S.F.	68	990	15
Savoy Mt. S.F.	105	1216	12
	2,264	50,923	13

1985 FISCAL YEAR
ATTENDANCE RECORD

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
AMES NOWELL	-	15,789	12,991	2,798	15,789
ASHLAND	-	21,552	18,353	3,199	21,552
BEARTOWN	7,613	39,406	33,826	5,580	47,019
BLACKSTONE	-	-	-	-	-
BORDERLAND	-	55,890	55,890	-	55,890
BOSTON HARBOR ISLANDS	4,430	35,334	35,334	-	49,764
BRADLEY PALMER	-	67,775	59,347	8,428	67,775
BUFFUMVILLE	-	13,897	9,811	4,086	13,897
CALLAHAN, RAYMOND J.	-	27,807	27,807	-	27,807
CAMPBELL FALLS	-	3,108	3,108	-	3,108
CAPE COD RAIL TRAIL	-	131,954	131,954	-	131,954
CATAMOUNT	-	-	-	-	-
CHESTER - BLANFORD	461	5,588	4,842	746	6,049
CHICOPEE	-	84,723	43,205	41,518	84,723
CLARKSBURG	2,374	7,332	4,764	2,568	9,706
COCHITUATE	-	170,825	80,161	90,664	170,825
CONNECTICUT RIVER RAMP	-	-	-	-	-
CONWAY	-	-	-	-	-
COOKSON	-	2,636	2,636	-	2,636
D.A.R.	13,840	34,715	17,630	17,085	48,555
DEAN POND BRIMFIELD	1,637	13,038	5,549	7,489	14,675
DEMAREST LLOYD	-	39,516	12,990	26,526	39,516
DENNISON LAKE	32,540	82,009	66,592	15,417	114,549
DIGHTON ROCK	-	10,051	7,725	2,326	10,051

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
DOUGLAS	-	74,858	45,004	29,854	74,858
DUBUQUE	-	20,975	20,975	-	20,975
EAST MOUNTAIN	-	-	-	-	-
ERVING	6,428	60,614	45,998	14,616	67,042
FED. WOMENS CLUB	2,491	12,431	12,292	139	14,922
F.G. HILLS	-	6,270	6,270	-	6,270
FREETOWN	-	30,205	23,081	7,124	30,205
GARDNER	-	7,737	4,716	3,021	7,737
GEORGETOWN-ROWLEY	-	-	-	-	-
GRANVILLE	9,302	12,228	7,497	4,731	21,530
GREAT BROOK FARM-CARLISLE	-	35,920	35,920	-	35,920
HALIBUT POINT	-	21,912	21,912	-	21,912
HAMPTON PONDS	-	45,795	21,098	24,697	45,795
HAROLD PARKER	40,986	44,932	40,809	4,123	85,918
HAWK'S NEST	-	-	-	-	-
H.O. COOK	-	-	-	-	-
HOLLAND POND	-	17,006	11,434	5,572	17,006
HOLYOKE RANGE	-	40,950	40,950	-	40,950
HOPKINTON	-	128,897	61,705	67,192	128,897
LEOMINSTER	-	39,968	21,069	18,899	39,968
LOWELL-DRACUT	-	15,979	15,979	-	15,979
LUDLOW	-	-	-	-	-
MARTHA'S VINEYARD	-	60,683	60,683	-	60,683
MASSASOIT	40,057	45,851	37,280	8,571	85,908
MOHAWK TRAIL	10,885	16,091	13,625	2,466	26,97[illegible]

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
MONROE	-	13,374	13,374	-	13,374
MOORE	-	39,320	39,320	-	39,320
MT. EVERETT	-	40,929	40,929	-	40,929
MT. GRACE	-	15,702	14,674	1,028	15,702
MT. GREYLOCK	15,531	205,224	205,169	55	220,755
MT. SUGARLOAF	-	77,259	77,259	-	77,259
MT. WASHINGTON	1,979	98,470	98,470	-	100,449
MYLES STANDISH	100,854	180,132	142,524	37,608	280,986
NANTUCKET	-	-	-	-	-
NATURAL BRIDGE	-	1,220	1,220	-	1,220
NICKERSON	135,522	89,266	89,266	-	224,788
NORTHFIELD	-	-	-	-	-
OCTOBER MT.	8,208	30,269	30,113	156	38,477
OTIS	-	-	-	-	-
OTTER RIVER	17,894	38,480	32,576	5,904	56,374
PEARL HILL	4,656	16,285	7,149	9,136	20,941
PERU	-	-	-	-	-
PETERSHAM	-	-	-	-	-
PITTSFIELD	7,245	76,768	70,220	6,548	84,013
PLUM ISLAND	-	152,940	152,940	-	152,940
PURGATORY CHASM	-	125,338	125,338	-	125,338
QUINSIGAMOND-REGATTA	-	217,548	196,765	20,783	217,584
QUINSIGAMOND-LAKE PARK	-	67,714	52,940	14,774	67,714
RED BRIDGE	-	-	-	-	-
RICH, J. HARRY	-	-	-	-	-
ROBINSON	-	20,405	12,008	8,397	20,405

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
RUTLAND	-	30,877	22,078	8,799	30,877
SANDISFIELD	-	11,294	5,270	6,024	11,294
SAVOY	11,359	27,198	24,933	2,265	38,557
SHAWME-CROWELL	59,656	7,489	6,524	965	67,163
SKINNER	-	96,465	96,465	-	96,465
SOUTH RIVER	-	-	-	-	-
SPENCER	-	16,545	8,918	7,627	16,545
STANDISH MONUMENT	-	29,643	29,643	-	29,643
STREETER	-	54,016	32,433	21,583	53,971
TACONIC FALLS	-	-	-	-	-
TOLLAND	26,132	68,480	51,280	17,200	94,612
TULLY RECREATION AREA	3,960	13,853	13,853	-	17,813
UPTON	-	15,030	15,030	-	15,030
WACHUSETT MOUNTAIN	-	262,900	262,900	-	262,900
* - SKI AREA	-	360,000	360,000	-	360,000
WAHCONAH FALLS	-	36,816	36,816	-	36,816
WALDEN POND	-	351,010	106,815	244,195	351,010
WARREN MANNING	-	3,149	2,152	997	3,149
WARWICK	-	-	-	-	-
WATSON	-	20,468	8,514	11,954	20,468
WEBB	-	57,265	57,265	-	57,265
WELLS	18,419	19,933	17,777	2,156	38,352
WENDELL	100	24,195	17,390	6,805	24,295
WEST LAKE	-	3,246	3,246	-	3,246
WHITEHALL	-	21,918	21,918	-	21,9[illegible]

* Privately operated

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
WILLARD BROOK	5,206	53,025	17,196	35,829	58,231
WILLOWDALE	-	28,188	28,188	-	28,188
WINDSOR	5,529	22,970	13,950	9,020	28,499
WOMPATUCK	30,527	337,046	337,046	-	367,573
TOTAL	625,821	5,081,909	4,182,666	899,243	5,707,703

HERITAGE PARKS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FALL RIVER	-	84,216	84,216	-	84,216
HOLYOKE	-	15,494	15,494	-	15,494
LAWRENCE	-	23,265	23,265	-	23,265
LOWELL	-	300,200	300,200	-	300,200
TOTAL		423,175	423,175		423,175

SKATING RINKS	DAY-USE	TOTAL
AUBURN	200,021	200,021
BROCKTON	108,164	108,164
FALL RIVER	143,803	143,803
FRANKLIN	167,162	167,162
GARDNER VETERANS	99,993	99,993
GREENFIELD	99,326	99,326
HAVERHILL	79,604	79,604
HOLYOKE	134,439	134,439
LOWELL	154,311	154,311
MARLBORO	215,170	215,170
NEW BEDFORD	133,723	133,723
NEWBURYPORT	148,479	148,479
NORTH ADAMS	65,638	65,638
PEABODY	190,977	190,977
PLYMOUTH	125,654	125,654
SPRINGFIELD	110,801	110,801
TAUNTON	97,141	97,141
WORCESTER	200,518	200,518
TOTAL	2,474,924	2,474,924

SWIMMING POOLS	DAY-USE	TOTAL
AGAWAM	20,947	20,947
ATTLEBORO	19,067	19,067
BROCKTON	29,641	29,641
CHICOPEE	14,003	14,003
CLINTON	35,962	35,962
FALL RIVER	28,047	28,047
FITCHBURG	18,112	18,112
HOLYOKE	8,120	8,120
LAWRENCE	28,888	28,888
LEOMINSTER	20,354	20,354
LOWELL	16,375	16,375
LUDLOW	15,953	15,953
MILFORD	27,422	27,422
SOUTHBRIDGE	17,899	17,899
SOUTH HADLEY	15,715	15,715
SPRINGFIELD	15,303	15,303
WESTFIELD	14,651	14,651
WORCESTER #1 (SHINE)	38,059	38,059
WORCESTER #2	39,168	39,168
TOTAL	395,686	395,686

BEACH AREAS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FT. PHOENIX	-	60,587	52,614	7,973	60,587
HORSENECK	30,887	348,628	79,687	268,941	374,515
SALISBURY	193,442	1,975,959	1,884,350	91,609	2,169,401
SCUSSET	43,414	136,348	64,439	71,909	179,762
SOUTH CAPE	1,278	41,266	27,935	13,331	42,544
TOTAL	269,021	2,562,788	2,109,025	453,763	2,838,809

	CAMPING	**DAY-USE**	**TOTAL**
Total Attendance At All Facilities	894,842	10,938,482	11,833,324

FY 1985 - CONSTRUCTION SUMMARY

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK	FISCAL YEAR
I	Horseneck Beach State Reservation	110-83	Tilcon Massachusetts Inc.	$ 25,485.	7/18/83	Paving Entrance Roads Horseneck Beach State Reservation	
I	Horseneck Beach State Reservation Gooseberry Point	118-83	Wallace Welding and Ornamental Iron Works	$ 23,524.	11/21/84	Steel stairs & Slab cutting at Gooseberry Point, Horseneck Beach	
I	Borderland State Park	124-83	Mass Heating	$ 7,132.	12/5/83	Boiler Renewal at Borderland State Park.	
I	Shawme-Crowell State Forest	112-83	Tilcon Massachusetts	$ 8,610.	9/21/83	Roadway Entrance Paving at Shawme-Crowell	
I	Boston Harbor Island State Park Hewitts Cove	117-83	Doyle Chimney Roofing Co.	3,900.	7/27/83	Chimney Construction	
I	Boston Harbor Island State Park Hewitts Cove	113-83	Sacchetti Plumbing & Heating	17,490.	8/13/83	Refurbishing Heating System	
I	Fort Phoenix State Reservation		M.C. Souza & Son	5,000.	6/1/84	Beach Area Restoration, Fort Phoenix State Reservation	
I	Boston Harbor I.S.P. Hewitts Cove	115-84	Ricciardelli & Sons, Inc.	$2,950.00	8/19/83	Drywall Taping	

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
II	Walden Pond	142-84	R.H. White	9,296.	6/19/84	Sewerage Pumping Upgrade
II	Lawrence Visitor Center	156-84	Raymond Monsour	$ 1,137,794.	5/31/84	Construction of the Visitor Center
II	Higgins Pool	136-84	Johnson Bros., Inc.	12,436.	4/21/84	Concrete Deck Repair
II	Lowell Heritage State Park	120,84	Pilgrim Construction	427,640.	3/2/84	Siphon Construction and Canal System Restoration and Renovation.
II	Lowell Heriatage State Park	105-84	New England Construction and Management Inc.	198,000.	3/5/84	Architectural Alterations at the Mack Building.
II	Lowell Heritage State Park		Empire Engineering	1,800.		HVAC repair.
II	Bradley Palmer State Forest	116-84	Fairway Roofing and Sheetmetal Co.	10,000.	9/14/84	Roofing and Skylight repaies.

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK FISCAL YEAR
III	Mt. Wachusett State Reservation	154-84	The Henley-Lundgren Co.	59,996.	6/19/84	Road Construction
V	Bascom Lodge Mt. Greylock State Reservation	88-82	J. Watson Co., Inc.	$182,856	8/31/83	Rehabilitation of Bascom Lodge

LAND ACQUISITION

NUMBER OF PARCELS	AMOUNT OF ACREAGE	TOTAL COST OF PARCELS
39 PARCELS	1,797.56 ACRES	$2,343,915.00

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1985

Land Acquisition - 7/1/84 to 6/30/85

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Cummington	Chesterfield Gorge	M. Stebbins Howes Etals	1/31/85	71 A	$60,000.
Northbridge	Blackstone River S.P.	Lorraine G. Hanson	2/11/85	21.97 A	11,000.
North Adams & Clarksburg	Natural Bridge	Agnes A. Elder	2/7/85	17 A	176,000.
North Adams	Natural Bridge	Agnes A. Elder & Joyce E. Kelly	2/7/85	3.2 A	28,000.
Amherst, Hadley & Northampton	Rail Trail	Boston & Maine Corp. & Guilford Trans. Indus.	3/25/85	83.45 A (9.6 miles)	400,000.
Douglas	Douglas S.F.	Richard C. Simmons	4/19/85	84 A	100,800.
Windsor	Windsor S.F.	Ronald A. Hunter	5/1/85	100 A	69,000.
Conway	Conway S.F.	Deane Lee	6/7/85	60 A	20,500.
Conway	Conway S.F.	Commonwealth of Massachusetts	6/7/85	19 A	Exchange (Dispositio
Mount Washington	Mt. Washington S.F.	Helen H. Melius ET ALS	6/7/85	115 A	40,000.
Granby	Holyoke Range	Rouville & Agnes Gingras	6/21/85	1.42 A	175,000
Northbridge	Blackstone River S.P.	George Osterman	6/21/85	11.5 A	5,000.
Douglas	Douglas S.F.	Burton & Cecile Carter	6/21/85	31. A	14,800.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1985

Land Acquisition - 7/1/84 to 6/30/85

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Holyoke	Holyoke Heritage S.P. Easement	Pioneer Valley Railroad Company Inc.	7/13/84	3.5 miles	Easement
Erving	Erving S.F.	Gerald B. Hobbs & Linda L. Hobbs	7/16/84	1.8 A	$14,500.
Salisbury	Salisbury S.R.	Joseph P. Pulvino	8/1/84	7,500 S.F.	162,500.
Sturbridge	Wells S.P.	Walker Pond Corporation	8/3/84	53.4 A	112,500
Dalton	Appalachian Trail	Town of Dalton/ Mass. Electric/ W.J. Cowee	8/10/84	257.5 A	90,000.
Amherst	Holyoke Range	Hollis W. Moore	8/23/84	15.6 A	90,000.
Warwick/ Orange Royalston	Warwick S.F. - Orange S.F. & Royalston S.F.	Roy D. & Marjorie Wetmore	8/28/84	116. A	38,700.
Orange	Orange S.F.	Comm. of Mass.	8/28/84	59. A	Exchange (Dispositi
Sutton	Purgatory Chasm S.P.	Leon T. Sochia III	8/28/84	16.5 A	18,000.
Granby	Holyoke Range	Charles J. Sullivan, Jr.	9/12/84	15. A	4,500.
Granby	Holyoke Range	Richard T. Bealieu & Mario A. Tonelli	9/12/84	8.5 A	3,400.
Amherst	Holyoke Range	Mary & Genevieve Miazga	9/12/84	31. A	70,000.
Douglas	Douglas S.F.	Angelo V. Vecchione	9/21/84	26. A	42,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1985

Land Acquisition - 7/1/84 to 6/30/85

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Wendell	Wendell S.F.	Allyn W. Coombs, Inc.	10/4/84	18. A	$ 7,200.
Granby	Holyoke Range	Gerard & Claire D. L'Heureux	10/4/84	60.5 A	25,000.
Huntington	Huntington S.F.	U.S.A. National Park Service	10/4/84	45. A	-------
Eastham	Cape Cod Rail Trail	Penn Central Corp.	10/11/84	33.5 A (2.8 miles)	80,000.
Middlefield	Middlefield S. F.	J. W. Kelly's Enterprises Inc.	11/16/84	108. A	30,000.
Blackstone	Franklin - Douglas Rail Trail	Design Ventures Inc. & Comm. of Mass.	11/26/84	-------	Agreement
North Adams	Apppalachian Trail Easement & Restrictions	City of North Adams	12/13/84	5.62 A	7,500.
Douglas, Uxbridge Millville, Blackstone Bellingham & Franklin	Rail Trail	Penn. Central Corporation	12/21/84	320. A (19.5 miles)	304,015.
Worcester	Blackstone River S.P.	Halford W. Park, Jr. & Helen Park Haskell	12/31/84	6.36 A	Gift
Douglas	Douglas S.F.	Angelo V. Vecchione	1/3/85	8.16 A	Gift
Sandwich	Scusset Beach	Dept. of Environmental Quality Engineering	1/11/85	--------	Lease Amendment
Hopkinton	Hopkinton	Tordiglione, Acton & Ward	1/24/85	36.5 A	115,500.
Northbridge	Blackstone River S.P.	Ronald & Edward Renad	1/28/85	15.08 A	28,500.

APPENDIX H

FY 1985 SUMMARY OF REVENUE

AREA	DAY-USE	CAMPING	OTHER	TOTAL
BEACHES	490,995.25	512,182.01	20,840.10	1,024,017.36
FORESTS & PARKS	706,339.40	1,012,236.40	232,262.05	1,950,837.85
POOLS	72,132.35	-	2,548.96	74.681.31
RINKS	2,462,175.60	-	90,358.26	2,552,533.86
TOTAL	3,731,642.60	1,524,418.41	346,009.37	5,602,070.38

APPENDIX I

PARKS FY 1985

	PARKING	RECEIPTS	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENT	CHILDREN'S ROLL-TYPE	COTTAGE PERMITS	CONCESSION	MISC.	PIER PERMITS	GROUP	PAY PHONE	TOTALS
AMES NOWELL	2,523.00		180.00							16.60				2.719.60
ASHLAND	2,850.00		1,440.00	820.00					121.90					5,231.90
ASHMERE LAKE								900.00						900.00
BEARTOWN	4,068.00	5,306.00	960.00	220.00	2.50	726.00			5.50					11,288.00
BORDERLAND						2,184.00								2,184.00
BOSTON HARBOR ISLAND										2,355.50				2,355.50
BRADLEY PALMER	7,086.00		840.00		.50	2,625.00				400.00		1,084.00		12,035.50
BUFFUMVILLE	2,796.00		900.00	40.00	5.50									3,741.50
CARLISLE	4,417.00							2,005.00	800.00					7,222.00
CHESTER	1,890.00		120.00		71.25							365.00		2,446.25
CHICOPEE	19,200.00		4,700.00	40.00	75.00		25.20		301.55				3.53	24,345.28
CLARKSBURG	2,409.00	2,855.00	1,060.00	80.00					11.00	300.00				6,715.00
COCHITUATE	67,566.00		17,240.00	600.00	390.50				5,126.17		2,472.00			93,394.67
D.A.R.	12,777.00	20,961.15	4,980.00						631.15	43.20				39,392.50
DEAN POND (BRIMFIELD)	5,172.00	291.00	1,080.00	60.00	21.25				5.50	1,078.40				7,708.15
DEMAREST LLOYD	21,150.00		4,340.00	20.00					324.57					25,834.57
DIGHTON ROCK	976.00		660.00							3.00				1,639.00
DOUGLAS	24,600.00		4,460.00	160.00					316.50	264.25				29,800.75
ERVING	11,277.00	7,293.75	4,400.00	100.00	33.00				150.00	13.40				23,267.15
FEDERATED WOMEN'S														.00
FREETOWN	1,983.00		1,320.00			960.00				10.15				4,273.15
GRANVILLE	2,571.00	4,430.00	120.00											7,121.00
HAMPTON POND	19,329.00		3,760.00	20.00	195.75	2,518.50			301.99					26,125.24
HAROLD PARKER	8,718.00	73,053.00	480.00	60.00					15.00				215.48	82,541.48
HOLLAND POND	4,527.00		840.00						5.50					5,372.50
HOPKINTON	79,200.00		19,700.00	240.00					7,910.90	45.00		764.00		107,859.90
LAKE DENNISON	5,850.00	43,510.00	1,980.00	20.00					75.40					51,435.40
LEOMINSTER	9,042.00		3,120.00		62.00	546.00			1,000.00				.32	13,770.32
MARTHA'S VINEYARD						648.00								648.00
MASSASOIT	6,126.00	62,884.00	1,200.00						188.77	128.64			77.16	70,604.57
MOHAWK TRAIL	2,676.00	23,467.00	280.00							240.00				26,663.00
MOORE						1,128.00								1,128.00
MT. GRACE	732.00		120.00											852.00
MT. GREYLOCK	138.00	6,899.00							21,135.00	11,209.83				39,381.83
MT. WASHINGTON		847.00												847.00
MYLES STANDISH	29,046.00	150,862.00	1,240.00	620.00		1,614.00		35,421.00	1,566.52	2,634.69			432.76	223,436.97
NATURAL BRIDGE	1,092.00				39.50									1,131.50
NICKERSON		288,484.00				1,110.00			505.00	233.00			1,915.03	292,247.03

PARKS FY 1985 CONT.

	PARKING	RECEIPTS	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENT	CHILDREN'S ROLL-TYPE	COTTAGE PERMITS	CONCESSION	MISC.	PIER PERMITS	GROUPS	PAYPHONE	TOTALS
OCTOBER MT.	339.00	18,874.00											72.13	19,285.13
OTTER RIVER	2,229.00	12,844.00	840.00						55.75	122.40			9.70	16,100.85
OTIS										84.91				84.91
PITTSFIELD	5,586.00	7,722.00	200.00						5.50				7.62	13,521.12
PURGATORY CHASM									176.75					176.75
QUINSIGAMOND LAKE	2,775.00	2,043.50			1,847.00				2,101.00	1,074.00				9,840.50
QUINSIGAMOND REGGATA	4,146.50		1,640.00		1,406.00					13.50				7,206.00
ROBINSON	7,638.00		2,000.00	60.00					57.85	41.30				9,797.15
RUTLAND	11,160.00		2,620.00	60.00					172.90					14,012.90
SANDISFIELD	3,962.00	16.00	2,160.00						5.50					6,143.50
SAVOY MTN.	2,181.00	16,116.00	520.00		.25				11.00	15.50				18,843.75
SHAWME CROWELL	1,047.00	90,505.00				564.00			260.00	4,335.35			435.62	97,146.97
SKINNER						864.00			10.00					874.00
SOUTH CAPE BEACH	12,750.00		940.00						5.00					13,695.00
SPENCER	4,257.00		800.00	40.00	21.75	852.00								5,970.75
TOLLAND	10,170.00	35,564.00	1,180.00											46,914.00
TULLY REC. AREA	15.00	1,482.00												1,497.00
UPTON						570.00								570.00
WACHUSETTS MTN.	654.00								72,092.00	569.75				73,315.75
WALDEN POND	98,844.00		17,080.00	120.00					3,999.90	373.00			77.35	120,494.25
WARREN MANNING	732.00		120.00											852.00
WATSON POND	9,027.00		1,420.00	40.00	64.75		8.70		311.50	9.80				10,881.75
WELLS	669.00	27,762.00							5.50	156.05				28,592.55
WELLS STREETER	7,301.00		2,860.00		100.75				57.85					10,319.60
WENDALL	2,595.00		1,500.00		14.00				5.50			180.00		4,294.50
WILLARD BROOK	11,466.00	11,656.00	2,500.00			313.50			153.45					26,088.95
WILLARD BR. PEARL HILL	7,050.00	9,243.00	1,600.00											17,893.00
WINDSOR	4,116.00	2,871.00	1,100.00	80.00	.75				11.00	70.00				8,248.75
WOMPATUCK	324.00	84,395.00				2,885.75			5.00	50.00				87,659.75
OFFICE ACCOUNT			640.00							3,841.36				4,481.36
TOTALS =	572,820.50	1,012,236.40	123,240.00	3,500.00	4,352.00	20,108.75	33.90	38,326.00	120,000.87	29,732.58	2,472.00	2,393.00	3,246.70	1,932,462.70

	TRAILER	LAUNDRO-MAT	SEASON PASS	UNCLAIMED REFUND CHECKS	FEES	MISC.	TOTAL
WALDEN BREEZES	17,415.00	960.15					18,375.15
TOTALS =	17,415.00	960.15					18,375.15

RINKS FY 1985

	CHILDREN	GROUP	ADULTS	SPECIAL EVENTS	RENTALS	SPECTATOR WALK-INS	LOCKERS	CONCESSION	PAY PHONE	MISC.	JOGGING	TOTALS
AUBURN	4,716.00		8,685.00	1,652.50	134,240.00		895.25	3,666.67	59.11			153,914.53
BROCKTON	5,426.50		7,574.00	4,057.50	140,448.25		880.75	6,716.00	50.28	25.00		165,178.28
FALL RIVER	4,370.00		6,744.00	4,536.75	131,722.50		1,121.00	13,340.00	90.45			161,924.70
FRANKLIN	7,411.00		7,734.00	13,129.00	161,479.50		629.25		110.38	30.42	47.50	190,571.05
GARDNER	3,151.50		3,678.00	2,705.25	97,454,50	11.50	353.25	2,325.00	31.06	304.60		110,014.66
GREENFIELD	3,893.00		2,781.00	1,150.00	76,452.50		165.50	5,000.00	27.76			89,469.76
HAVERHILL	3,238.50		2,837.00	1,540.50	126,230.00		395.25		32.19			134,273.44
HOLYOKE	2,397.00		3,103.00	2,993.50	111,577.50		301.25	4,313.06	36.70			124,722.01
LOWELL	4,558.50		8,077.00	3,844.50	166,605.00		1,152.50	7,133.34	45.65			191,416.49
MARLBORO	4,094.00		5,840.00	3,380.50	114,434,00		471.48	3,000.00	27.23	27.55		131,274.76
NEW BEDFORD	3,009.00		5,646.00	8,152.50	121,957.50		689.13		201.72			139,655.85
NEWBURYPORT	5,873.50		5,253.00	11,003.00	140,550.00	15.00	500.16	12,101.00	58.88		15.00	175,369.54
NORTH ADAMS	2,187.50		2,755.00	1,783.00	51,220.00		179.75	3,581.00	4.32			61,710.57
PEABODY	4,989.00		7,207.00	6,800.00	144,640.00		544.00		47.06			164,227.06
PLYMOUTH	5,016.50		4,874.00	3,609.50	122,915.00		749.00	8,016.00	25.06	194.14		145,399.20
SPRINGFIELD	2,794.00		5,626.00	779.50	116,170.00		413.25	3,600.00	35.89			129,418.64
TAUNTON	2,483.00		5,683.00	4,590.50	132,778.00	699.10		6,576.00	58.16			152,867.76
WORCESTER	6,263.00		7,678.00	1,324.50	115,250.00	584.25			25.81			131,125.56
TOTALS -	75,871.50		101,775.00	77,032.50	2,206,124.25	1,309.85	9,440.77	79,368.07	967.71	581.71	62.50	2,552,533.86

POOLS FY 1985

	CHILDREN	ADULTS	PASSES	LOCKERS	PAY PHONE	CONCESSION	MISC.	TOTALS
AGAWAM	2,372.25	1,485.50				233.55		4,091.30
ATTLEBORO	2,709.00	2,170.00				- 200.00		4,679.00
BROCKTON	3,859.25	2,869.50					31.00	6,759.75
CHICOPEE	2,172.50	878.50				.50		3,056.50
CLINTON	2,806.00	921.50				121.90		3,849.40
FALL RIVER	4,861.50	813.50				100.00		5,775.00
FITCHBURG	2,106.00	564.50				151.75		2,822.25
HOLYOKE	1,161.50	511.00				176.99		1,849.49
LAWRENCE	4,012.75	1,051.00				7.50		5,071.25
LEOMINSTER	2,077.50	472.00				121.90		2,671.40
LOWELL	3,752.25	576.50						4,328.75
LUDLOW	1,804.00	465.00				75.10		2,344.10
MILFORD	3,381.10	1,594.00						4,975.10
SOUTHBRIDGE	2,504.00	381.50				5.50		2,891.00
SOUTH HADLEY	1,363.75	989.50				5.50		2,358.75
SPRINGFIELD	1,550.00	179.50				5.50		1,735.00
WESTFIELD	2,490.25	934.00				210.60		3,634.85
WORCESTER #1	3,545.50	1,508.00			7.86	400.00		5,461.36
WORCESTER #2	3,780.25	1,458.00			16.81	1,002.00	70.00	6,327.06
TOTALS -	52,309.35	19,823.00			24.67	2,423.29	101.00	74,681.31

APPENDIX L

BEACHES FY 1985

	PARKING	RECEIPTS	WALK-INS	SEASON PASS	CONCESSION	LOCKERS	PAYPHONE	RETURN REFUND CHECK	MISC.	BUS	TOTALS
FT. PHOENIX	6,831.00			4,600.00	231.00		11.09				11,673.09
HORSENECK	257,607.00	54,740.00	20.25	43,740.00	372.88	25.90	119.84		92.00	520.00	357,237.87
SALISBURY	97,150.00	325,715.00		18,380.00	12,710.50		1,493.02	18.00	100.00	160.00	455,726.52
SCUSSET	55,967.00	131,727.01		5,920.00	5,307.00		347.87		11.00	100.00	199,379.88
TOTAL -	417,555.00	512,182.01	20.25	72,640.00	18,621.38	25.90	1,971.82	18.00	203.00	780.00	1,024,017.36

BUDGET 2120-0300

FY 1985

SUBSIDIARY ACCOUNTS		DOLLARS
01	Salaries Permenant Positions	$2,530,896
02	Salaries Other	9,582,122
03	Services Non-Employees	77,000
04	Food for Persons	0
05	Clothing	30,700
06	Housekeeping Supplies and Expenses	54,000
07	Laboratory and Medical Supplies and Expenses	72,000
08	Heating and Plant Operation	1,789,430
09	Farm and Grounds	25,500
10	Travel and Automotive Expenses	248,136
11	Advertising and Printing	30,000
12	Maintainance - Repairs, Replacements and Alterations	675,000
13	Special Supplies and Expenses	71,126
14	Office and Administrative Expenses	11,000
15	Equipment	165,320
16	Rentals	73,000
	TOTAL =	$15,435,230

FACILITY OPERATING COST

FORESTS AND PARKS

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Ames-Nowell	600	3	5	15,789	2,703.00	2,719.60	3,677.16	60,195.05	63,872.21
Ashland	470	2	6	21,552	5,110.00	5,231.90	345.00	52,518.70	52,863.70
Beartown	10930	2	7	47,019	10,556.50	11,288.00	7,603.52	64,409.65	72,013.17
Blackstone R.							2,380.64	19,394.29	21,774.93
Borderland	1250	5	3	55,890	-	2,184.00	20,438.12	80,036.99	100,475.11
Bill	195			49,764	-	2,355.50	78,198.84	110,974.02	189,172.86
Bradley Palmer	833	4	5	67,775	9,010.00	12,035.50	23,030.59	124,738.91	147,769.50
Brimfield	4033	2	6	14,675	6,624.45	7,708.15	2,614.09	32,614.00	35,228.09
Bristol Blake	200						see Region 1		
Buffumville	400	0	7	13,897	3,741.50	3,741.50	1,444.05	35,864.09	37,308.14
Callahan	425	3	0	27,807				36,500.82	36,500.82
Campbell's Falls	4			3,108			see Mt. Wash		
Carlisle & Great Brook	925	4	2	35,920	4,417.00	7,222.00	6,676.73	32,759.17	39,435.90
Cape Cod Rail Trail	21.8m			131,954			-	10,791.85	10,791.85
Catamount	1125						see Mohawk		
Chester-Blandf.	2038	1	3	6,049			3,594.50	34,829.00	38,423.50
Chicopee	574	5	12	84,723	24,040.20	24,345.28	7,129.52	126,944.86	134,074.38
Clarksburg	3250	1	7	9,706	6,404.00	6,715.00	3,323.93	44,895.76	48,219.69
Cochituate	1126	2	10	170,825	85,796.50	93,394.67	24,977.53	97,365.62	122,343.15
Conn. River Ramp	-						see Robinson		
Conway	2025						see DAR		
kson	2385			2,636			3,511.24	41,265.11	44,776.55

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
DAR	1,517	3	11	48,555	38,718.15	39,392.50	10,288.11	87,561.20	97,849.31
Demerest Lloyd	222	0	9	39,516	25,510.00	25,834.57	1,672.01	27,735.09	29,407.10
Dighton Rock	85	1	5	10,051	1,636.00	1,639.00	3,600.13	25,232.79	28,832.92
Douglas	3,901.16	1	10	74,858	29,220.00	29,800.75	11,231.07	104,894.09	116,125.16
Dubuque	7,822.00	1	2	20,975			5,455.95	24,503.00	29,958.95
East Mt.	375.00						See Beartown		
Erving	4,480.8	2	9	67,042	23,103.75	23,267.15	10,358.08	86,064.64	96,422.72
Fed. Woman	586	0	3	14,922			1,344.78	14,732.94	16,077.72
Fox & FG Hills	810			6,270					
Freetown	5,441	3	3	30,205	3,303.00	4,273.15	11,818.95	74,371.45	86,190.40
Gardner	29	0	4	7,737					
Georgetown	1,112						See B. Palmer		
Granville	2,247	2	5	21,530	7,121.00	7,121.00	4,708.39	59,073.00	63,781.39
Halibut Point	54			21,912			2,452.40	7,144.41	9,596.81
Hampton Pond	184	2	18	45,795	23,304.75	26,125.24	8,558.74	93,039.79	101,598.53
Harold Parker	3,000	6	18	85,918	82,311.00	82,541.48	22,126.22	152,851.27	174,977.49
Hawknest	218						See Nickerson		
HO Cook	1,620						See Mohawk		
Holand Pond	1,000	0	12	17,006	5,367.00	5,372.50	2,254.64	60,537.43	62,792.07
Holyoke Range	2,406.02	5	0	40,950			3,019.28	28,466.00	31,485.28
Hopkinton	996.5	5	24	128,897	99,904.00	107,859.90	41,589.31	147,576.85	189,166.16

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Lake Dennison	4,390	0	19	114,549	51,360.00	51,435.40	8,521.81	86,836.82	95,358.63
Leominster	4,265	1	8	39,968	12,224.00	13,770.32	3,318.77	52,399.35	55,718.12
Lowell Dracut	1,000	1	0	15,979			1,228.47		1,228.47
Ludlow	29						See Chicopee		
Martha's Vineyd.	4,000	1	1	60,683		648.00	3,994.55	32,152.49	36,147.04
Massasoit	1,500	6	15	85,908	70,210.00	70,604.57			
Middlefield	1,957								
Mohawk Trail	6,457	2	9	26,976	26,423.00	26,633.00	7,972.90	82,269.00	90,241.90
Monroe	4,321	0	2	13,374			10,497.31	44,570.00	55,067.31
Moore	324	3	0	39,320		1,128.00	5,934.06	45,714.75	51,648.81
Mt. Everett	1,310			40,929				966.96	966.96
Mt. Grace	1,689	1	2	15,702	852.00	852.00	1,330.28	35,903.00	37,233.28
Mt. Greylock	10,327	5	9	220,775	7,037.00	39,381.83	24,480.30	117,377.53	141,857.83
Mt. Washington	3,222	2	3	100,449	847.00	847.00			
Myles Standish	14,622	9	47	280,986	181,768.00	223,436.97			409,850.78
Nantucket	137								
Natural Bridge	37.20	3	2	1,220	1,131.50	1,131.50	2,881.92	12,795.55	15,677.47
Nickerson	1,779	5	23	224,788	288,484.00				
Northfield	2,223						See Mt. Grace		
October Mt.	15,711	1	4	38,447	19,213.00	19,285.13	7,202.65	48,365.61	55,568.26
Otis Res.	3,861					84.91	See Tolland		
TOTAL									

FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL		ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
		YR. RND.	SEASONAL						
Otter River	1,220	4	9	56,734	15,913.00	16,100.85	15,060.76	59,123.20	74,183.96
Pearl Hill	945	0	10	20,941	17,893.00	17,893.00	246.00	40,011.39	40,257.39
Peru (Ashmere Lake)	3,150						See Pittsfield		
Petersham	200						See Otter River		
Pilgrim Mem.	7	0	6				4,216.76	26,851.48	31,068.24
Pittsfield	9,695			84,013	13,508.00	13,521.12	10,978.05	91,098.54	102,076.59
Plum Island	73			152,940			648.44	17,189.73	17,838.17
Purgatory Ch	203.5	3	2	125,338		176.75	2,525.70	54,549.41	57,075.11
Quinsigamond									
Lake Park	25	0	9	67,714	6,665.50	9,840.50	6,457.17	56,877.77	63,334.94
Regotta Pt.	15	2	12	217,584		7,206.00	10,050.42	73,196.08	83,246.50
Red Bridge	42						See Chicopee		
Robinson	828	3	8	20,405	9,698.00	9,797.15	7,594.66	76,158.00	83,752.66
Rutland	1,920	2	13	30,877	13,840.00	14,012.90	11,310.05	71,343.71	82,653.76
Sandisfield	7,783	1	3	11,294	6,138.00	6,143.50			
Savoy	10,500	2	11	38,557	18,817.25	18,843.75			
Shaume Crowell	2,766	4	17	67,163	91,552.00	97,146.97			
Skinner Mt.	390	0	9	96,465		874.00	4,712.89	92,667.00	97,379.89
South Mt.	5						23,308.21	130,110.38	153,418.59
South Rv.	500								
Spencer	1,048	2	3	16,545	5,118.75	5,970.75	5,970.99	48,823.95	54,794.94
TOTAL									

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Standish Mon.	29			29,643			218.85	2,734.98	2,953.83
Streeter	1,000	0	8	53,971	10,261.75	10,319.60	2,104.99	39,769.37	41,874.36
Sugarloaf Mt.	532	0	2	77,259			1,215.61	27,552.00	28,767.61
Taconic Trail	930						See Mt. Greylock		
Tolland	8,000	3	10	94,612	46,914.00	46,914.00			
Tully Res	1,150	0	3	17,813	1,497.00	1,497.00	2,343.18	26,793.80	29,136.98
Upton	2,660	1	0	15,030		570.00	3,785.71	6,500.33	10,286.04
Washusett Mt.	1,975	4	15	292,900	654.00	73,315.75	19,231.38	123,983.20	143,214.58
Wahconah Falls	53			36,816			32.22	5,318.66	5,350.88
Walden Pond	300	7	27	351,010	116,044.00	120,494.25	20,967.83	170,363.04	191,330.87
Warren Manning	380	0	2	3,149	852.00	852.00	306.88	6,289.38	6,596.26
Warwick	7,216	4	0				9,703.78	70,762.00	80,465.78
Watson Pond	10	1	6	20,468	10,560.45	10,881.75	3,239.45	30,066.90	33,306.35
Webb	30			57,265			4,220.68	20,319.12	24,539.80
Wells	1,134.4	2	9	38,352	28,431.00	28,592.55	10,776.98	66,349.02	77,126.00
Wendell	7,711	2	5	24,295	4,289.00	4,294.50	3,586.82	61,646.00	65,232.82
West Lake	See Sandisfield			3,246			See Sandisfield		
Whitehall	877			21,918			See Hopkinton		
Willard Brook	4,960	5	14	58,231	25,622.00	26,088.95	18,092.46	134,770.75	152,863.21
Willowdale	2,400	2	0	28,188			See B. Palmer		
Windsor	1,726	1	7	28,499	8,167.75	8,248.75	1,348.83	33,689.35	37,038.18
TOTAL									

FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Wompatuck	2,877	6	15	367,573	84,719.00	87,659.75	52,597.93	144,772.85	197,370.78
TOTAL	241,321.58	166	593	5,707,703	1,694,606.75	1,618,662.06	665,630.22	4,368,924.49	5034,554.71

BEACHES FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Ft. Pheonix	23	3	18	60,587	11,431.00	11,673.09	10,486.11	107,255.76	117,741.87
Horseneck	537	6	103	374,515	356,653.15	357,237.87	25,557.54	373,276.34	398,833.88
Salisbury *	520	7	113	2,169,401	441,405.00	455,726.52	133,058.21	581,529.08	714,587.29
Scusset **	380	3	32	179,762	193,614.01	199,379.88	40,613.65	158,456.46	199,070.11
South Cape	736	2	2	42,544	13,690.00	13,695.00	6,469.25	51,030.49	57,499.74
TOTAL	2,196	21	268	2,838,809	1,016,793.16	1,037,712.36	216,184.76	1,271,548.11	1,487,732.89

* Includes Washburn Island

** Includes Plum Island

RINKS

FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
AUBURN	5.06	7	5	200,021	15948.75	153,914.53	76,466.58	142,631.28	219097.86
BROCTON	1.72	7	6	108,164	17938.00	165,178.28	127873.32	127569.40	255442.72
FALL RIVER	4.10	8	6	143,803	16771.75	161,924.70	100723.22	134999.91	235723.13
FRANKLIN	6.74	6	5	167,162	28950.75	190,571.15	68103.35	115409.81	183513.16
GARDNER	4.48	8	3	99,993	9899.50	110,014.66	63930.77	124074.94	188005.71
GREENFIELD	.90	6	5	99,326	7989.50	89,469.76	57596.30	115595.58	173191.88
HAVERHILL	5.02	10	5	79,604	8011.25	134,273.44	76047.14	123532.13	199579.27
HOLYOKE	7.29	7	6	134,439	8794.75	124,722.01	8542.28	136035.05	144577.33
LOWELL	4.47	7	7	154,311	17632.50	191,416.49	87568.34	152306.14	239874.48
MARLBORO	5.33	7	5	215,170	13785.50	131,274.76	67030.46	121060.78	188091.24
NEW BEDFORD	4.64	7	7	133,723	17496.63	139,655.85	83522.84	143381.43	226,904.27
NEWBURYPORT	6.30	8	8	148,479	22659.66	175,369.54	96273.13	136320.43	232,593.56
NORTH ADAMS	4.76	1	0	65,638	6905.25	61,710.57	41698.62	85068.70	126,767.32
PEABODY	6.76	7	7	190,977	19540.00	164,277.06	112358.01	158579.36	270,937.37
PLYMOUTH	5.03	6	7	125,654	14249.00	145399.20	97298.21	128041.26	225,339.47
SPRINGFIELD	5.20	7	7	110,801	9612.75	129,418.64	70624.70	142872.15	213496.85
TAUNTON	4.59	8	5	97,141	13455.60	152,867.76	84758.84	122533.49	207292.33
WORCESTER	2.04	6	6	200,518	15849.75	131,125.56	90938.54	134004.40	224942.94
TOTAL	83.3	123.00	102.00	2474924	265490.89	2552533.86	1411354.50	2344015.80	3755370.30

POOLS FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
AGAWAM	2.1	0	19	20,947	3857.75	4091.30	3560.31	47778.95	51339.26
ATTLEBORO	3.1	0	15	19,067	4879.00	4679.00	3520.33	46834.20	50,354.53
BROCKTON	1.2	0	16	29,641	6728.75	6759.75	3828.73	50941.87	59770.60
CHICOPEE	2.9	0	17	14,003	3051.00	3056.50	4165.71	47500.79	51666.50
CLINTON	1.8	0	19	35,962	3727.50	3849.40	7023.51	51483.84	58507.35
FALL RIVER	1.9	0	19	28,047	5675.00	5775.00	6129.43	48,296.54	54,425.97
FITCHBURG	1.5	0	19	18,112	2670.50	2822.25	8124.96	50010.60	58135.56
HOLYOKE	1.6	0	17	8,120	1672.50	1849.49	4925.29	48124.86	53050.15
LAWRENCE	3.0	0	23	28,888	5063.75	5071.25	10,536..22	50,062.85	60,599.07
LEOMINISTER	5.2	0	20	20,354	2549.50	2671.00	10158.11	48666.38	58824.49
LOWELL	1.9	0	23	16,375	4328.75	4328.75	87,568.34	152,306.14	239,874.48
LUDLOW	.8	0	18	15,953	2269.00	2344.10	4081.40	42181.33	46262.73
MILFORD	3.0	0	20	27,422	4975.10	4975.00	11442.72	5047.22	61849.94
SOUTHBRIDGE	5.3	0	18	17,899	2885.50	2891.00	8369.96	45041.47	53411.43
SOUTH HADLEY	1.0	0	18	15,715	2353.25	2358.75	5659.89	43742.72	49402.61
SPRINGFIELD	3.2	0	19	15,303	1729.50	1735.00	7583.68	46653.00	54326.68
WESTFIELD	1.6	0	17	14,651	3424.00	3634.85	4733.94	43512.77	48246.71
WORCESTER # 1	1.3	0	23	38,059	5053.50	5461.36	10462.33	62996.95	73459.28
WORCESTER # 2	2.0	0	22	39,168	5238.25	6327.06	9862.18	62494.07	72356.25
TOTAL	44.4	0	362.00	395,686	71,532.10	74,681.31	216,737.04	1,019,036.80	1255773.84

REGIONAL RINKS AND POOLS

FISCAL YEAR 1985

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Region III	Pool Maintenance						6,846.97	35,444.11	42,291.08
Region IV	Rink and Pool (General)						5,088.79	-	5,088.79
Region IV	Rink and Pool Maintenance						4,015.14	65,903.38	69,918.52
TOTAL							15,950.90	101,347.49	117,298.39

HERITAGE PARKS AND REGIONAL HEADQUARTERS

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Fall River	7	4	3	84,216	-	-	56,940.73	142,209.22	199,149.95
Gardner	.2								
Holyoke	7	7*	3	15,494					
Lawrence	.5			23,265			13,599.05	80,109.90	93,708.95
Lowell	200	11	0	300,200			59,083.00	259,612.60	318,695.60
Lynn	5								
Springfield									
Western Gt.Way		3*					1,204.14	4,262.30	5,466.44
Heritage Totals		25	6	423,175			130,826.92	486,194.02	617,020.94
*Includes 03's									
Regional Headquarters									
Region One	32	17½	0				26,999.22	231,003.15	258,002.37
Region Two	11	10	0				34,682.26	227,348.23	262,030.49
Region Three	14						21,375.12	156,037.96	177,413.08
Region Four	30	9	0				19,712.36	119,932.00	139,644.36
Region Five	28	4	0				23,308.21	130,110.38	153,418.59
TOTAL (Regionals)		40½	0				147,452.29	864,431.72	1,011,844.01

MISC.

FISCAL YEAR 19 85

FACILITY	ACRES	NUMBER OF PERSONNEL YR. RND.	SEASONAL	ATTENDANCE	REVENUES FROM FEES	TOTAL REVENUES	MAINTENANCE COSTS	PERSONNEL COSTS	TOTAL OPERATING COSTS
Amherst Hort.							2,193.97	42,438.00	44,631.97
Sign Shop - Wompatuck							1,152.84	13,298.87	14,451.81
Sign Shop - Region 5							1,354.69	9,059.21	10,413.90
Stock - Region 5							13,598.86	-	13,598.86
Mechanic - Region 5							1,300.02	18,141.43	19,441.45
Garage - Brimfield							7,293.15	36,064.00	43,357.15
Heavy Equip. Operator - Region 5							10,031.06	18,496.87	28,527.93
Heavy Equip. Operator - Region 3							2,927.64	34,691.29	37,618.93
Maintenance - Region 1							2,325.50	107,450.20	109,775.70
Carpenter - Region 1							895.89	34,912.80	35,808.69
Carpenter - Region 3							723.46	18,504.20	19,227.66
Carpenter - Region 3 (Upton)							79.40	11,031.35	11,110.75
Carpenter - Region 5							2,377.18	17,695.37	20,072.55
TOTAL							46,253.66	361,783.59	408,037.35

APPENDIX O

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Management

100 Cambridge Street
Boston
Massachusetts
02202

**Division of
Forests & Parks**

Oak Leaftier Prediction - 1985

The Counties of Bristol and Norfolk will exhibit severe red, black and scarlet oak defoliation during the next few weeks in certain areas. Unless careful observations are made this defoliation can mistakenly be attributed to the gypsy moth. Close examination of the area will reveal, however, that the white oak species remain unaffected whereas the other oak will show varying degrees of defoliation.

The problem can be related directly to a complex of leaftier and leafrollers, the majority of which are the leaftier, Croesia semipurpurana. Enclosed for your information is a U. S. Forest Service leaflet describing the species.

The oak leaftier is a species native to the Northeast and occasionally breaks out into epidemic proportions. Beginning in the late 70's and extending through 1983 a severe outbreak was experienced in Eastern Franklin County. During that period of time data taken from a series of plots showed an average loss of 29% of the red oak through mortality.

An aerial survey conducted in June of 1984 revealed a total of 69,363 acres of noticeable defoliation (see enclosed map) in Southeastern Massachusetts. Subsequent sampling in suspected areas indicate heavy defoliation can be expected in 1985.

The purpose of this communication is to alert you to this fact. Generally, oak leaftier defoliation precedes that of the gypsy moth but, nevertheless, can be confused with it. If you are in doubt contact District Supervisor, Joseph Lokitus, at the Foxboro State Forest - telephone: 543-5850. He can assist you.

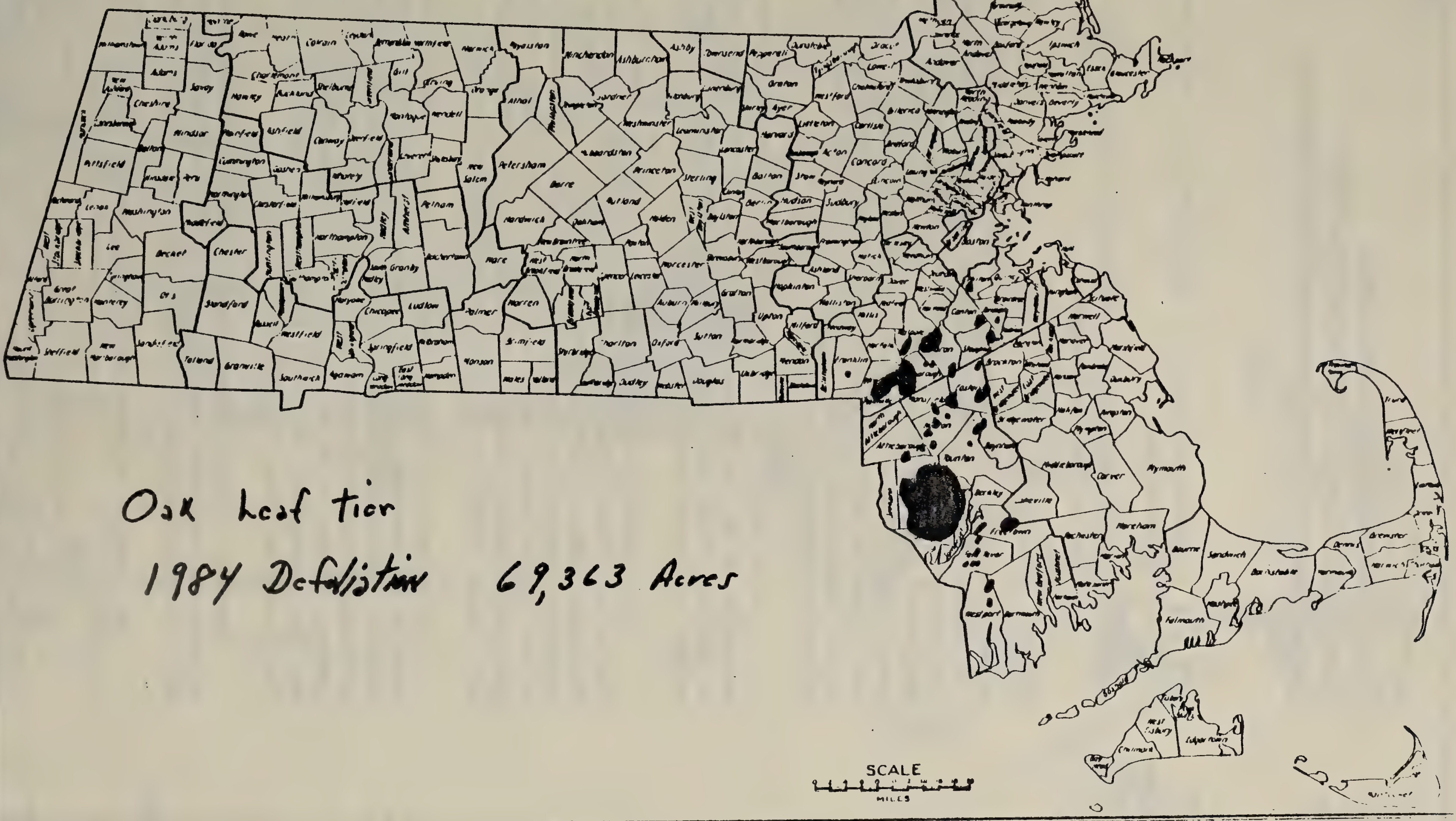
Any control effort undertaken during this current year would be ineffective due to the relatively short period where the insect would be vulnerable to an insecticide and that period has passed. The area will be carefully monitored by the Bureau of Insect Pest Control, however, for possible State action in 1986.

Charles S. Hood, Chief
Bureau of Insect Pest Control

Gilbert A. Bliss
Director

MASSACHUSETTS

CITY AND TOWN LINES



Oak Leaf tier

1984 Defoliation 69,363 Acres

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Management

100 Cambridge Street
Boston
Massachusetts
02202

Office of the Commissioner

Michael S. Dukakis
Governor

James S. Hoyte
Secretary

James Gutensohn
Commissioner

NOTICE

TO: Mayors and Boards of Selectmen, All Massachusetts Communities

SUBJECT: Gypsy Moth Status-1985 and Department of Environmental Policy Recommendations

DATE: March 19, 1985

Ground survey work conducted by Department personnel indicates that certain areas of the Commonwealth should expect considerable gypsy moth activity during the coming spring and early summer. Specifically, two major areas, Southeast Worcester County extending into Southern Middlesex County and Barnstable County including parts of all communities on the Cape will bear the brunt of the gypsy moth defoliation in 1985.

At this time tree officials in all communities affected have been alerted to the extent and severity of the gypsy moth within their boundaries. With this information in hand the local decision must then be made as to whether a control effort is wanted or warranted.

If a community decides that a control program is to be conducted the decision must then be made as to the insecticide to be used. This Department is continuing in its effort to persuade communities to strongly consider the use of the biological, Bacillus thuringiensis, as the control agent to be employed. Proper timing and application will give satisfactory control of the gypsy moth while at the same time will create little or no impact upon the environment as a whole.

A Supplemental Budget request has been introduced in the present Legislative session, the main purpose of which is to establish a fund to help communities to defray the cost of gypsy moth control. If favorably accepted by the Legislature a program designed to reimburse communities for up to 50% of the cost of the control efforts will be put into operation. It will, however, be restricted to those communities using Bacillus thuringiensis.

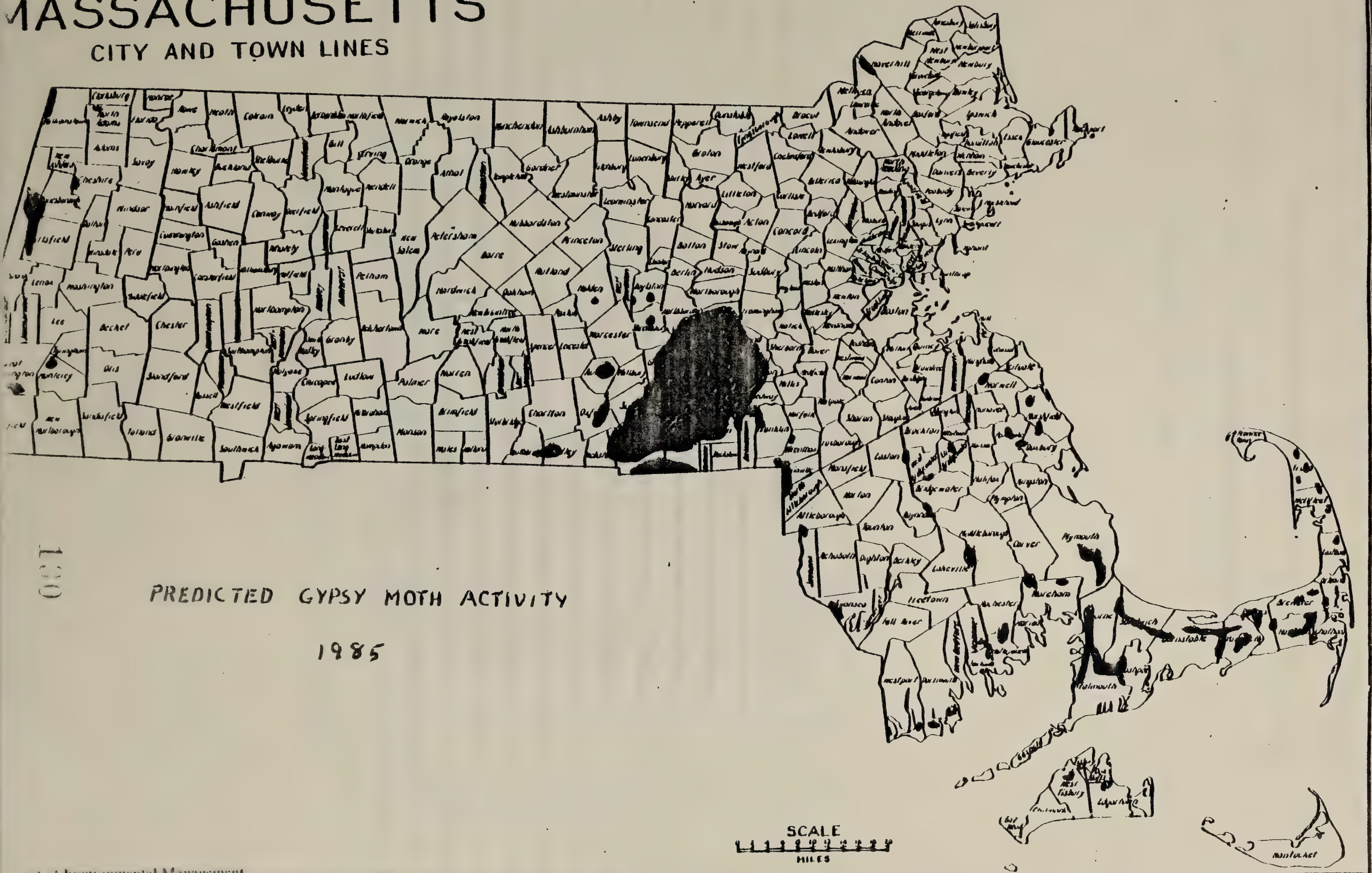
Bureau of Insect Pest Control personnel continue to be available to help you and your local superintendent of insect pest control resolve any technical problems concerning the gypsy moth which may confront you.

For further information please contact Charles S. Hood at 617-727-3184.

Gilbert A. Bliss
Director of Forests and Parks

James Gutensohn
Commissioner of Environmental Management

MASSACHUSETTS
CITY AND TOWN LINES



PREDICTED GYPSY MOTH ACTIVITY

1985

ment of Environmental Management

Monthly Totals of Incidents/Acreage and Dollar Loss

June 1984 - May 1985

Month	No. Fires	Acres	Cost
June	239	102.85	15,069.00
July	189	[illegible]	11,214.00
August	226	125.85	22,175.00
September	491	358.70	46,435.00
October	1,007	2,351.35	263,552.51
November	357	274.75	20,621.50
December	49	19.25	3,795.50
January	39	9.75	1,677.32
Febuary	247	144.45	12,382.85
March	2,615	4,399.40	232,528.03
April	2,719	4,382.35	482,573.28
May	852	2,423.60	96,147.60
Total	9,040	14,666.20	1,208,671.59

District Yearly Totals of Incidents/Acres and Dollar Loss

June 1984 - May 1985

District	No. Fires	Acres	Cost
1	392	167.75	59,550.00
2	832	447.95	37,677.00
3	923	1,023.90	176,630.45
4	1,001	1,523.00	99,910.56
5	937	1,855.00	51,604.00
6	839	1,582 -	79,989.00
7	403	778 -	46,777.70
8	920	576.60	116.627.00
9	280	466.10	32,434.67
10	558	456.35	40,302.48
11	1,052	1,741.55	181,377.53
12	363	2,535 -	117.127.00
14	540	1,513	168,346.20
Total	9,040	14,666.20	1,208, 353.59

Damage - $789,034.23 (all catagories - all districts)

District Incidents by Cause

June 1984 - May 1985

Dist.	Light	Camper	Smoker	Debris	Incen-Diary	Equip. Use	R.R.	Children	Misc.	Total
1	-	14	54	110	71	27	4	93	19	392
2	-	13	24	64	205	10	3	231	282	832
3	-	25	50	143	317	20	1	185	182	923
4	-	67	22	249	378	8	36	223	18	1,001
5	-	11	201	259	229	-	5	190	42	937
6	-	3	7	139	28	6	1	493	162	839
7	-	11	23	59	118	4	9	168	11	403
8	1	21	73	227	109	21	69	291	108	920
9	4	31	22	85	32	17	51	36	2	280
10	7	53	50	152	118	21	12	140	5	558
11	1	66	76	265	90	25	37	471	21	1,052
12	-	3	2	65	251	10	23	-	9	363
14	-	5	50	100	61	4	5	286	29	540
Total	13	323	654	1,917	2,007	173	256	2,807	890	9,040

District Incidents By Size

June 1984 - May 1985

District	A	B	C	D	E	Total
1	339	52	1	-	-	392
2	677	150	5	-	-	832
3	427	480	16	-	-	923
4	501	480	20	-	-	1,001
5	707	195	30	-	5	937
6	270	550	18	-	1	839
7	192	196	15	-	-	403
8	642	273	5	-	-	920
9	195	78	5	2	-	280
10	340	216	2	-	-	558
11	655	366	28	3	-	1,052
12	106	246	5	5	1	363
14	229	284	24	2	1	540
Total	5,280	3,566	174	12	8	9,040

"A" Fire _ .25 Acres or less
"B" Fire .26 " to 9.9
"C" Fire = 10. " to 99.
"D" Fire = 100 " to 299.
"E" Fire = 300 " to 999
"F" Fire = 1,000 " to 4,999
"G" Fire = 5,000 " or over

Acres Burned By District

June 1984 - May 1985

District	A	B	C	[illegible]	[illegible]	[illegible]
1	84.75	68 -	15 -	-	-	167.75
2	148.95	223 -	76 -	-	-	447.[illegible]
3	106.65	620.25	297 -	-	-	1,02[illegible]
4	125.25	769.75	628 -	-	-	1,523 -
5	176.75	423.25	755 -	-	500 -	1,855 -
6	67.50	899.50	315 -	-	300 -	1,582 -
7	48. -	338 -	392 -	-	-	778 -
8	104.85	391.75	80 -	-	-	576.60
9	30.60	125.50	110 -	200	-	466.10
10	76.60	339.75	40 -	-	-	456.35
11	113.15	585.40	683 -	360 -	-	1,741.55
12	26.50	329.50	129 -	-	2,050	2,535 -
13	57.25	475.75	380 -	250 -	350 -	1,513
Total	1,166.80	5,589.40	3,900 -	810 -	3,200 -	14,666.20

Acreage Burned By Cause

June 1984 - May 1985

Camper	Smoker	Debris	Incendiary	Lightning	Misc.	Children	R.R.	Equip. use	Total
1,347.85	471.90	1,502.40	4,979.65	9.35	1,469.20	3,809-	664.15	412.70	14,666.

Acres Burned By Forest Type

June 1984 - May 1985

District	Comm. Forest	Non - Comm. Forest	Nonforested Watershed	Non - Forest	Total
1	-	167.75	-	-	167.75
2	.25	429.05	-	18.65	447.95
3	204.50	182.25	.75	636.40	1,023.90
4	849.00	357.00	5.00	312.00	1,523.00
5	245.25	1,178.50	22.00	409.25	1,855.00
6	3.25	1,536.00	-	42.75	1,582.00
7	673.75	23.25	-	81.00	778.00
8	215.20	198.10	16.25	147.05	576.60
9	333.20	130.90	-	2.00	466.10
10	194.40	151.45	7.60	102.90	456.35
11	1,209.85	381.80	-	149.90	1,741.55
12	2,196.75	249.25	1.50	87.50	2,535.00
14	51.00	1,211.00	64.75	186.25	1,513.00
Total	6,176.40	6,196.30	117.85	2,175.65	14,666.20

Appendix X

Total Incidents By Forest Types

June 1984 - May 1985

Com. Forest	Non - Comm. Forest	Non - Forest	Nonforested Watershed	Total
1,509	4,704	2,697	130	9,040

FORESTS & PARKS

PLANNING AND
DEVELOPMENT

SOLID AND
HAZARDOUS WASTE

WATERWAYS

WATERWAYS

DIVISION OF PLANNING AND DEVELOPMENT

ANNUAL REPORT FY'85

Introduction

The Division of Planning and Development is the technical planning arm of DEM, and works closely with the Division of Forests and Parks to acquire and develop new forest and park lands, and to plan for long-term land management needs.

Since FY'84 Planning and Development has been charged with administration of $127.5 million in new capital bond funds appropriated by the legislature for DEM to acquire new park land, improve existing facilities, and develop programs to encourage statewide open space preservation.

In FY'85 the Division of Planning and Development has grown to accomodate the many new professional staff people needed to effectively administer the bond funds. Under Deputy Commissioner Robert F. Kumor, who arrived in February, 1985, the Division underwent administrative reorganization and moved to new offices at 225 Friend Street.

The Division continues in its traditional role of providing planning, engineering and landscape design services to the Division of Forests & Parks. More than ever before the Division of Planning and Development is actively involved in management planning for Department-owned lands through the G.O.A.L.S. program. Through the Natural Resources and Legal staffs the Division carries out all new acquisitions. The Engineering staff are the project managers for all construction, expansion, and restoration projects at Department facilities.

With the expanded capital resources and staff, the Division's role has expanded as well. Planning and Development now administers a number of programs affecting non-Department lands, through grants and technical assistance to local communities. Some of these programs, such as the Heritage State Park program, the Olmsted Park Restoration program, the City and Town Commons program, and the Bay Circuit Greenbelt program, are the first of their kind in the nation. They are helping create a heightened public awareness of open space preservation issues in Massachusetts.

A. Operations - Administration, Fiscal & Special Projects

Mark Cullinan, Chief of Operations

During FY'85 the Division saw the development of centralized administration. The purpose of Operations is to assist DEM and EOEA in performing their mandated responsibilities by improving the efficiency and effectiveness of the Division of Planning and Development.

FY'85 Major Accomplishments:

Developing a capital account project tracking system, establishing a contract selection committee and implementing the Performance Management System.

B. Land Acquisition

Michael Meagher, Chief of Legal Affairs
Katherine Abbott, Director of Natural Resources Planning

Acquisition of additional forest and park lands enables DEM to expand and improve the Commonwealth's state park system and thus protect and enhance the quality of Massachusetts' environment.

The Division of Planning and Development works closely with the Division of Forests & Parks to identify and acquire appropriate parcels of land.

Within the Division of Planning and Development both Natural Resources and Legal Affairs staffs are involved in the acquisition process. Every proposed acquisition requires an extensive review to establish its potential public benefit.

The review process involves the identification of the public need for the use of the land, a comprehensive evaluation of land resource attributes, and an analysis of possible alternatives to acquisition.

FY'85 Major Accomplishments:

During FY'85 the Division acquired 39 parcels of land totalling 1797.56 acres at a cost of $2,343,915.00. The bulk of this land, 63%, is classified as inholdings (land areas adjacent to or surrrounding by existing State Forest or Park land). Thirty-five percent (35%) is classified for trail purposes. These acquisitions provided increased protection for the Appalachian Trail, expansion of the Cape Cod Rail Trail and the establishment of two multi-use trail systems; a 20 mile-long trail between the towns of Franklin and Douglas in the Blackstone River Valley and a 10 mile-long trail from Amherst to Northhampton. The remaining land acquired represented increases to the Heritage Park System.

C. Engineering

John Cary, Chief Engineer

The Engineering staff is responsible for the development aspects of all capital projects, working closely with the designated project managers and the regional staff of the Division of Forests & Parks. Engineering oversees park restoration work, provides technical services, including engineering, landscape architecture and surveying, to DEM projects, and coordinates with the Natural Resource staff in planning for new park development.

FY'85 Major Accomplishments:

A total of 23 construction contracts were awarded in FY'85 totalling more than $4 million for work on projects such as restoration of Walden Pond State Reservation, restoration of Myles Standish Monument, restoration of Ft. Phoenix State Beach, restoration of Ashland State Park, upgrading the electrical system at Salisbury Beach State Reservation, construction of new fire tower at Myles Standish State Forest, paving of Trotting Park Road in Lowell, continued development work on Halibut Point Development and construction at South Cape Beach, restoration of Mt. Greylock State Reservation and rehabilitation of Plymouth State Pier and Plymouth Rock.

D. Heritage State Parks

Chris Greene, Chief Planner

This program is charged with the development of 12 new state parks in urban settings throughout Massachusetts. The objectives of these parks are threefold: 1) the creation of quality downtown open space; 2) the celebration of cultural heritage of the community; and 3) stimulus of private economic development. The first round of funding (1978-79) allocated $35 million for the establishment of parks in Lowell, Fall River, Lawrence, Lynn, Gardner, North Adams, Holyoke and Springfield. In 1983-84 $37.8 million was appropriated for parks in Roxbury, Dorchester/Milton Lower Mills, Turners Falls, and the towns along the the route of the old Blackstone Canal as well as for completion of the first eight parks.

FY'85 Major Accomplishments:

Advisory committees were established to begin master plan development for Lower Mills, Roxbury, and Turners Falls parks during FY'85. The park and visitor centers at Holyoke and Fall River Heritage Parks were officially opened to the public. The supplemental master plan for the Worcester-Blackstone area park was completed. The water power exhibit in Lowell was opened, as well as Pemberton Park in Lawrence. Dredging and landscape restoration at Dunn Pond in Gardner was completed.

E. Historic Landscape Preservation

1. Olmsted Historic Landscape Preservation Program

S. Christopher Scott, Program Director

Designated for $15 million of funding in the 1984 and 1985 capital outlay budget, this program is the first statewide initiative in the nation to undertake restoration of parks designed by Frederick Law Olmsted.

Twelve Olmsted-designed parks -- Franklin Park, Jamaica Pond, Olmsted Park, the Riverway and the Back Bay Fens in Boston and Brookline; Lynn Woods and High Rock Reservation in Lynn; D.W. Field in Brockton; Kennedy Park in Fall River; Buttonwood Park in New Bedford; Forest Park in Springfield; and Elm Park in Worcester -- have been selected for historical research, comprehensive master planning, design and rehabilitation.

FY'85 Major Accomplishments:

- established and met regularly with a statewide advisory committee
- promulgated Guidelines & Criteria for Implementation
- commissioned Reconnaissance Level Archeology Surveys and Landscape History Reports for each of the 12 parks
- contracted for base survey and mapping services for each park
- established and met regularly with community advisory groups in each of the parks
- initiated the selection process and invited proposals for master planning services for each of the parks.

2. City and Town Commons Program

Willa Small Kuh, Program Director

The City and Town Commons Program is a seven million dollar state grant initiative to acquire and restore commons and squares of outstanding natural beauty and/or cultural significance in city and town centers. Funds have been allocated to communities of high economic need where administration of the Program will be done in coordination with other public and private investments, all intended to preserve the character of the community.

FY'85 Major Accomplishments:

- request for Preliminary Proposals sent to every Massachusetts municipality
- public information meetings held
- 132 Preliminary Proposals submitted and reviewed
- 40 projects invited to make full submissions
- "Common Sense" program guidebook published
- final proposals submitted and reviewed
- 22 grantees announced in April, 1985.

F. Long Wharf

Catherine Barner, Program Director

DEM is working with the Boston Redevelopment Authority to restore Long Wharf. When completed it will be a working wharf providing access to the Boston Harbor Islands State Park and serving as the harbor's recreational boating center. Seven million dollars was authorized for this project in the 1984 capital outlay. It will provide for infrastructure repair and development of a visitor center to provide scheduling and program information for the Harbor Islands and the state park system.

FY'85 Major Accomplishments:

Throughout FY'85 several public events were sponsored at the waterfront. Both the landscape design contract and the exhibit design contracts were initiated.

G. Schooner Ernestina

S. Christopher Scott, Project Director

The Schooner Ernestina is the last existing Fredonia style Gloucester Schooner. She was built in 1894 and plied the water off George's Bank as a commercial fishing vessel for 30 years before being outfitted as an Arctic explorer. She sailed to the Arctic numerous times in the next 20 years. She was repatriated to the United States in 1982, and given to the Commonwealth by the Republic of Cape Verde. In cooperation with the Schooner Ernestina Commission, DEM is undertaking a complete restoration of this historic ship for use as a sail training vessel.

FY'85 Major Accomplishments:

FY'85 saw the initiation of implementation of a $200,000 capital authorization to restore the vessel. Initial efforts have focused on the restoration of all woodwork, specifically the decks, aft cabin, rigging and spars.

H. Dam Safety

Mark Cullinan, Director

This program was transferred from DEQE to DEM in July, 1983. The program is mandated under Chapter 253, sections 44-47 of the M.G.L. to inspect and insure the safety of approximately 1,700 privately and publicly owned dams. It is currently staffed with three engineers with headquarters located in Lancaster.

FY'85 Major Accomplishments:

- developing an effective and efficient management information system
- moving the headquarters from Boston to Lancaster
- designing and developing new dam safety legislation
- beginning to promulgate rules and regulations
- developing an effective schedule of dam inspections
- preparing a comprehensive inventory of dams.

Historically the program has been little known and underfunded in the context of state operations. DEM has recognized the urgency to increase staffing and resources to bring the program to a level of efficiency.

I. Bay Circuit Greenbelt Program

Susan Ziegler, Program Director

The Bay Circuit Greenbelt is a land conservation program designed to create a network of parks and open spaces surrounding the Boston Metropolitian Region. The Greenbelt program seeks to foster a healthy relationship between open space protection and the development needs of municipalities in suburban Boston. The program includes land acquisition, technical assistance and planning grants to cities and towns as mandated by Chapter 631 of the Acts of 1956.

FY'85 Major Accomplishments:

- assembled data base of existing resources
- convened the Governor's Advisory Committee.

J. Legal Affairs

Michael Meagher, Chief of Legal Affairs

Legal staff are involved throughout the acquisition process, from the time a property is identified by DEM staff until the recording of the deed.

The Legal Affairs staff also provides legal support services for all the Division's programs. Those legal services include legal planning, drafting of agreements, contract review and administration, conduct of negotiations, and construction contract dispute resolution. It is anticipated that there will be significant increase in demand for legal support services during FY'86.

K. Natural Resource Planning

Katherine Abbott, Director of Natural Resource Planning

State-wide planning efforts focuing on conservation and recreation are consolidated in Natural Resources Planning. The Natural Resources staff is involved in all land acquisitions, and works closely with the Legal Affairs staff.

1. Scenic Rivers Program

The program was established to protect the unique environment that makes a river or stream an outstanding resource, the program seeks to protect the river systems by monitoring construction and hydro development proposals and through a greenway program which awards planning grants to local watershed councils to develop specific recommendations for effective river corridor management.

FY'85 Major Accomplishments:

During FY'85 the designation of a portion of the Housatonic River and the segment of the Merrimack River between N.H. border and Haverhill increased by 1/3 the number of river corridor miles protected under the Massachusetts Scenic and Recreational Rivers Act.

Under the Greenway Program, management plans were completed for the Pamet, Stillwater, Westfield and Westport Rivers.

2. Trails Program

The program staff investigates trail opportunities and chooses optimum routes for acquisition (fee, easements, etc.) and construction with the assistance of the Statewide Trails Committee and others. The program provides comprehensive statewide trails planning, technical assistance to communities, design of DEM bike trails to be constructed with DPW funds, and recommends improvements to existing forest & park trails.

FY'85 Major Accomplishments:

Include the extension of the Cape Cod Rail Trail, completion of the Mid-State Trail (foot trail through Worcester County), completion of the UMass Trails study, completion of the Robert Frost Trail from Mt. Holyoke to Mt. Toby and the inception of master planning for trails in DEM parks.

3. Cultural Resource Program

This is a new program designed to provide comprehensive historic mangement addressing the identification, evaluation, protection and interpretation of the DEM's historic, archaeological, architectural and cultural resources.

FY'85 Major Accomplishments:

Through an initial study in FY'85, a baseline inventory of almost 2000 archaelological and historic resources within the Forest & Park system has been completed and corresponding resource management recommendations and intrepretive guidelines have been produced.

4. Coastal Acquisition Planning

The coastal acquisition program is designed to identify and acquire sites along the coast for public access purposes for active and passive recreational activities as well as acquisition of scenic and ecologically significant parcels for preservation purposes.

FY'85 Major Accomplishments:

Work has begun on a inventory of coastal sites which would be suitable for acquisition. Once the inventory is complete work will begin on acquiring parcels and where public acquisition is not appropriate DEM will work with local officials, private organization and land owners to develop other methods which will protect important parcels.

5. Connecticut Valley Action Plan

Cooperation among the Department of Environmental Management, the National Park Service and the Connecticut River Watershed Council continued in FY'85 under the Connecticut Valley Action Plan, to develop an integrated program of significant long-term protection and wise use of the Connecticut River and its related land resources. The program area encompasses the 68 miles of river in Massachusetts and the 19 cities and towns which border it, an area of approximately 800 square miles.

FY'85 Major Accomplishments:

As of the end of June, 1985, about 12 potential land acquisitions were identified with one 215 acre farm and mountain site slated for cooperative protection measures (conservation restrictions) by DEM and the Department of Food and Agriculture. Sixty thousand dollars in waterways grants were awarded to Connecticut Valley Action Program Committees for river bank stablization and navigational markers. Twelve educational/public participation meetings were held in the valley to discuss issues such as recreational uses, landscape preservation, archeological site protection, and river related economic development. Special committees were formed to investigate regional bikeway concepts and critical resource protection.

L. G.O.A.L.S (Guidelines for Operations and Land Stewardship)

Jonathan Geer, Program Director

G.O.A.L.S is a comprehensive management planning program for the Department's Forest & Park system. The G.O.A.L.S. plans provide guidelines for future management, use, protection, and expansion of the forests and parks. Plan are developed by teams of Forest & Park and Planning and Development staff with public input provided through citizen advisory committees and/or public meetings.

FY'85 Major Accomplishments:

Work continued in FY'85 on plans for the following forests and parks: Myles Standish State Forest, Harold Parker State Forest, Wachusett Mt. State Reservation, Holyoke Range State Park, D.A.R. State Forest, Wendell State Forest and J. Harry Rich State Forest. The scheduled completion dates for the plans is early in 1986.

M. S.C.O.R.P. (Statewide Comprehensive Outdoor Recreation Plan)

Glenn Scott, Program Director

SCORP is a program designed to promote, protect, and preserve statewide outdoor recreation availability including the physical and programmatic demand.

FY'85 Major Accomplishments:

During FY'85 the 1983-85 action plan was published and released.

N. Western Massachusetts Office

Thomas Dyer, Director

Much of DEM's planning work involves properties and projects in the western part of the state. A need for full-time western Mass. staff became apparent, and a western Mass. planning director now coordinates eight full-time planning professionals.

Throuhout FY'85 this group worked without benefit of central office or support staff. They work out of their homes or borrowed office space.

The Springfield and Turners Falls Heritage State Parks are coordinated through the Western Mass. office, as are several Olmsted and CTC Projects, and G.O.A.L.S planning at D.A.R. State Forest, Holyoke Range and Wendell State Forest. Other efforts involve preliminary planning for a four-season recreation area at Greylock Glen in Adams, and ongoing planning in cooperation with other state agencies to promote tourism and development in the "Northern Tier". The Connecticut Valley Action Plan is also administered through the Western Mass. planning office.

APPENDICES

Division of Planning and Development

Fiscal Year 1985

APPENDIX "A"	Fiscal Summary	A1
APPENDIX "B"	Design and Engineering Contracts	B1 - B6
APPENDIX "C"	Land Acquisition Summary	C1 - C3

FISCAL SUMMARY

DIVISION OF PLANNING AND DEVELOPMENT

FISCAL YEAR - 1985

Contract Categories	Contracts Awarded		Total Dollar Value
Appraisers (96 parcels)	68		$ 247,240.
Title Examiners (96 parcels)	28		51,367.
Design Studies & Exhibit Designs	10		999,183.
Surveys (land & archeological)	5		20,450.
Construction	23		4,731,992.
		Total	$ 6,050,232.

Land Acquisition

Number of Parcels Acquired	Total Acreage	Total Cost
39	1,797.56 A	$ 2,343,915.

GRAND TOTAL	$ 8,394,147.

FISCAL YEAR 1985

REGIO	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK Construction
1	John G. Asiaf Mem'l Rink	150-84	T.L. Edwards, Inc.	$ 21,546.	6-26-84	Gravel & Bituminous Pavement
1	Fall River Heritage State Park	140-84	AV Associates, Inc.	163,922.	7-20-84	AV- Video Surveylance Installation
1	Trotting Park Road	168-84	Professional Paving, Inc.	206,800.	3-27-85	Road Reconstruction
1	Fort Phoenix State Park	209-85	Capeway Roofing Systems	15,000.	5-20-85	Roof Repairs
1	Plymouth Pier	174-84	Scorpio Craftsman	3,000.	10-15-84	Winter Cover
1	Fort Phoenix State Reservation	176-84	Sherry Construction Corp.	4,820.	12-12-84	Handicap Parking Rehabilitation
1	Plymouth Pier	177-84	Bay State Marine & Foundation Co.	13,000.	3-11-85	Pier Repairs and Improvements

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK Construction	FISCAL YEAR 1985
1	Plymouth Rock	211-85	Tilcon Massachusetts Inc.	$ 6,100.	5-13-85	Pavement Improvements	
1	Armstrong Memorial Rink	222-85	Action Contracting Corp.	875.	5-2-85	Chimney Removal	
1	Ames Nowell State Park	232-85	Bertarelli Bros.	5,000.	6-24-85	Road Improvements	
1	Ames Nowell State Park	233-85	Dunn Landscape & Tree Corp.	5,000.	6-24-85	Landscape Construction	
2	Halibut Point State Park	161-84	Miles River Sand & Gravel, Inc.	17,141	11-19-84	Disassembly and Removal of Stone Bldg.	
2	Lowell Heritage State Park	119-83	J.F. White Contracting Co.	2,395,000.	10-14-84	Canal Restoration and Renovation	
2	Lowell Heritage State Park	202-85	Middlesex Contractors & Riggers, Inc.	11,443.	3-28-85	Belt Pulley Shaft Restoration	

FISCAL YEAR 1985

Construction

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
3	Moore State Park.	155-84	J.E. Murray, Inc.	$ 50,336.	8-28-84	Sewage Works Construction
3	Wachusett Mountain State Reservation	154-84	The Henley-Lundgren Co.	12,000.	6-18-84	Road Reconstruction
3	Gardner Heritage State Park	175-84	Trust Construction Co.	951,450.	1-7-85	Visitor Center Construction
3/4	Brockton, Springfield, & Worcester	167-84	Titan Roofing, Inc.	59,000.	11-13-84	Skating Rink Roof Repairs
4	Holyoke Heritage State Park	143-84	A.R. Green & Sons, Inc.	262,720.	10-30-84	Summit House Restoration
4	Holyoke Heritage State Park	133-84	Contrac, Inc.	142,625.	6-11-84	Railroad Work
4	Holyoke Heritage State Park	145-84	A.R. Green & Sons, Inc.	340,167.	10-30-84	Exhibit Hall Finishes

FISCAL YEAR 1985

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK Construction
5	South Mountains Headquarters	134-84	Shedd, Inc.	$ 8,447.	4-20-84	New Bathroom & Modifications
5	Handicap Trail-Pittsfield	208-85	Tri-Town Paving	28,700.	5-28-85	Handicap Trail- Bituminous Pavement

FISCAL YEAR 1985

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	Architect	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF services Design
1	South Cape Beach State Park	179-84	Hayden-Wegman, Inc.	$270,000.	3-26-85	Final Design
1	Fort Phoenix State Park	185-85	Hoyle, Tanner, & Associates	33,005.	4-10-85	Final Design of Improvements
1	Fall River Heritage State Park	157-84	Scape Unlimited	54,800.	5-20-85	Phase II Final Design
1	Myles Standish Monument	198-85	City Design Collaborative, Inc.	41,078.	4-4-85	Final Design of Improvements
1	Myles Standish State Forest	220-85	Kennan & Kenny Architects	14,000.	3-3-85	Design of Firetower
2	Trotting Park Road	153-84	Hoyle, Tanner, & Associates	11,600.	7-3-84	Final Design
2	Lawrence Heritage State Park	164-84	Hoyle, Tanner, & Associates	80,000.	10-31-84	Canal Street Greenway/Towpath Design

FISCAL YEAR 1985

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	Architect	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF Services Design
2	Dorchester Heritage State Park	169-84	Moriece & Gary, Inc.	$200,000.	3-25-85	Master Plan
2	Merrimack Riverfront Park	163-84	Moriece & Gary, Inc.	114,700.	2-18-85	Park Design
3	Gardner Heritage State Park	171-84	Boston Museum Design Group	180,000.	1-23-85	Exhibit Design

"APPENDIX C"

LAND ACQUISITION SUMMARY

FISCAL YEAR 1985

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Holyoke	Holyoke Heritage S.P. Easement	Pioneer Valley Railroad Company, Inc.	07/13/84	3.5 miles	$ Easement
Erving	Erving S.F.	Gerald B. Hobbs & Linda L. Hobbs	07/16/84	1.8 A	14,500.
Salisbury	Salisbury S.R.	Joseph P. Pulvino	08/01/84	7,500 S.F.	162,500.
Sturbridge	Wells S.P.	Walker Pond Corp.	08/03/84	53.4 A	112,500.
Dalton	Appalachian Trail	Town of Dalton, Mass. Electric & W.J. Cowee	08/10/84	257.5 A	90,000.
Amherst	Holyoke Range	Hollis W. Moore	08/23/84	15.6 A	90,000.
Warwick, Orange & Royalston	Warwick S.F., Orange S.F., & Royalston S.F.	Roy D. & Marjorie Wetmore	08/28/84	116. A	38,700.
Orange	Orange S.F.	Commonwealth of Mass.	08/28/84	59. A	Exchange (Disposition)
Sutton	Purgatory Chasm S.P.	Leon T. Sochia III	08/28/84	16.5 A	18,000.
Granby	Holyoke Range	Charles J. Sullivan, Jr.	09/12/84	15. A	4,500.
Granby	Holyoke Range	Richard T. Bealieu & Mario A. Tonelli	09/12/84	8.5 A	3,400.
Amherst	Holyoke Range	Mary & Genevieve Miazga	09/12/84	31. A	70,000.
Douglas	Douglas S.F.	Angelo V. Vecchione	09/21/84	26. A	42,000.

FISCAL YEAR 1985

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Wendell	Wendell S.F.	Allyn W. Coombs, Inc.	10/04/84	18. A	$ 7,200.
Granby	Holyoke Range	Gerard & Claire D. L'Heureux	10/04/84	60.5 A	25,000.
Huntington	Huntington S.F.	U.S.A. National Park Service	10/04/84	45. A	--------
Eastham	Cape Cod Rail Trail	Penn Central Corp.	10/11/84	33.5 A (2.8 miles)	80,000.
Middlefield	Middlefield S.F.	J.W. Kelly's Enterprises, Inc.	11/16/84	108. A	30,000.
Blackstone	Franklin-Douglas Rail Trail	Design Ventures, Inc. & Comm. of Mass.	11/26/84	--------	Agreement
North Adams	Appalachian Trail Easement & Restrictions	City of North Adams	12/13/84	5.62 A	7,500.
Douglas, Uxbridge, Millville, Blackstone, Bellingham & Franklin	Rail Trail	Penn Central Corp.	12/21/84	320. A (19.5 miles)	304,015.
Worcester	Blackstone River S.P.	Halford W. Park, Jr. & Helen Park Haskell	12/31/84	6.36 A	Gift
Douglas	Douglas S.F.	Angelo V. Vecchione	01/03/85	8.16 A	Gift
Sandwich	Scusset Beach S.R.	Dept. of Environmental Quality Engineering	01/11/85	-------	Lease Amendment
Hopkinton	Hopkinton S.P.	Tordiglione, Acton & Ward	01/24/85	36.5 A	115,500.
Northbridge	Blackstone River S.P.	Ronald & Edward Renad	01/28/85	15.08 A	28,500.

FISCAL YEAR 1985

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
Cummington	Chesterfield Gorge	M. Stebbins Howes Et Als	01/31/85	71. A	$ 60,000.
Northbridge	Blackstone River S.P.	Lorraine G. Hanson	02/11/85	21.97 A	11,000.
North Adams & Clarksburg	Natural Bridge	Agnes A. Elder	02/07/85	17. A	176,000.
North Adams	Natural Bridge	Agnes A. Elder & Joyce E. Kelly	02/07/85	3.2 A	28,000.
Amherst, Hadley & Northampton	Rail Trail	Boston & Maine Corp. & Guilford Trans. Indus.	03/25/85	83.45 A (9.6 miles)	400,000.
Douglas	Douglas S.F.	Richard C. Simmons	04/19/85	84. A	100,800.
Windsor	Windsor S.F.	Ronald A. Hunter	05/01/85	100. A	69,000.
Conway	Conway S.F.	Deane Lee	06/07/85	60. A	20,500.
Conway	Conway S.F.	Commonwealth of Massachusetts	06/07/85	19. A	Exchange (Disposition)
Mount Washington	Mt. Washington S.F.	Helen H. Melius Et Als	06/07/85	115. A	40,000.
Granby	Holyoke Range	Rouville & Agnes Gingras	06/21/85	1.42 A	175,000.
Northbridge	Blackstone River S.P.	George Osterman	06/21/85	11.5 A	5,000.
Douglas	Douglas S.F.	Burton & Cecile Carter	06/21/85	31. A	14,800.

FORESTS & PARKS

PLANNING &
DEVELOPMENT

SOLID AND
HAZARDOUS WASTE

WATERWAYS

WATERWAYS

ANNUAL REPORT

BUREAU OF SOLID WASTE DISPOSAL

For the Fiscal Year ending June 30, 1985

INTRODUCTION

FY 85 was a year of growth in new directions for the Bureau of Solid Waste Disposal. It was highlighted by a major research effort on solid waste generation and disposal, major policy initiatives towards integrated and regional solid waste management and the study of recycling as a solid waste disposal option. The year was characterized by staff re-organization and recruitment of highly motivated personnel, and capped off by extensive Bureau participation in drafting a comprehensive solid waste management plan in cooperation with the Department of Environmental Quality Engineering. This was incorporated with the state's plan and presented to the Legislature by Governor Dukakis.

I. MANDATES

The powers and duties of the Bureau of Solid Waste Disposal, as part of the Department of Environmental Management, are contained in a number of statutes, including: M.G.L. Ch. 16, sec. 18-24, dealing with disposal of solid waste (including hazardous waste); M.G.L. Ch. 21D, dealing with hazardous waste treatment, storage and disposal facilities; and M.G.L. Ch. 94 sec. 321-327, dealing with the administration of the Beverage Container Law.

Accordingly, the Bureau regularly discharges the following responsibilities:

--investigating and studying the solid waste needs of the Commonwealth

--developing plans and programs for solid waste disposal

--conducting research and demonstration projects

--encouraging improved methods of solid waste disposal, including recycling

--providing technical assistance to communities

--administering the Beverage Container Law.

As well, the Bureau is empowered to actively participate in solid waste disposal, including:

--acquiring land, structures, facilities or easements necessary for solid waste disposal, by purchase, lease, or eminent domain

--contracting for the operation of solid waste facilities

--leasing land acquired for solid waste disposal to a person or entity for the construction, operation or maintenance of solid waste facilities.

II. SOLID WASTE PROGRAMS AND ACTIVITIES

A. Redirection of Solid Waste Planning Activities

The thrust of the Bureau's solid waste planning activities changed in FY 1985. Previously, the Bureau had acted primarily as a proponent of mass-burn energy recovery facilities. As a result,

the Bureau had played, over a number of years, an important role in organizing or monitoring several projects to develop energy recovery facilities by providing staff and other technical assistance to communities considering this waste disposal option. Chief among these has been the North East Solid Waste Committee (NESWC) project, which involved the construction of a 1500 ton per day energy recovery facility. The NESWC project was noteworthy for the high degree of cooperation required among the 22 participating towns. Bureau involvement also included the purchase of the facility site in the Town of North Andover, the purchase of residue, emergency and by-pass landfill space at the City of Peabody landfill, and other acquisitions and financial support to the project.

The Massachusetts Refusetech, Inc.-owned (MRI) facility constructed for the NESWC communities at North Andover entered shakedown testing in April, a year ahead of schedule, and began accepting waste for full commercial operation on September 25, 1985. As a result of the completion of the major portions of the project, Bureau participation in the project was reduced in November, 1984 and again in March, 1985. Other solid waste planning activities have assumed increasing importance.

The gradual disengagement of the Bureau from the NESWC project included a reduction of Bureau staff dedicated to the project, transferring the Contract Community Representative's role to management by the NESWC Advisory Board and Executive Committee, and structuring a multi-agency review committee to select an operator for the Peabody landfill by January 1986.

B. Planning and Research on Waste Generation and Disposal Capacity:

In FY 85, the Bureau conducted surveys of waste generation, municipal and commercial landfill operations, and groundwater contamination, for each of the 351 municipalities in the Commonwealth. The mail-in portion of the survey was followed-up by Bureau staff and on-site research at municipal waste offices to ensure comprehensiveness. Data-gathering also entailed extensive cooperation with several divisions of DEQE and with other local, regional, state, and federal agencies. Preliminary assessments of groundwater contamination were from existing consultants' and engineers' reports, academic studies, and Environmental Impact Reports. Sources for the several aspects of the assessment of landfills are summarized in Appendix One.

The results of the study are essential to relate because they led, in October 1984, to policy recommendations before the Cabinet, and by May 1985 to a major gubernatorial legislative package on solid waste. They include:

1. The quality of groundwater is feared to be widely and seriously threatened. At least 40 percent of Massachusetts' 195 active landfills are either polluting or threatening to pollute groundwater. Seven wells in the Commonwealth have already been closed due to contamination. As well, there was evidence to suggest that the problem of groundwater contamination is even more widespread than has been documented. Groundwater contamination could pose a significant public health threat,

primarily because groundwater serves as drinking water for half the residents of Massachusetts.

2. Massachusetts is rapidly running out of disposal capacity. Three-quarters of the state's landfills are projected to be out of space by the end of the decade. Given that landfills are used to dispose of 84 per cent of our waste, this could mean a significant capacity shortfall of over 3.7 million tons by the end of the decade, if timely construction activity is not undertaken. This shrinkage of capacity has already driven landfill prices up.

These findings were published by the Bureau in the "Active Landfill Report" in June; drafts for review and criticism had circulated throughout the spring of 1985. The survey, and the conclusions it reached, were made possible by the hiring of a policy/research staff and the acquisition of computing capacity. The staff also contributed to other initiatives which will be considered later in this report.

C. Regional Solid Waste Management

Traditionally, Massachusetts' communities have disposed of their waste in single-community landfills or incinerators. Since most incinerators were closed after the passage of the Clean Air Act, almost half of our municipalities rely on a landfill within their own boundaries. In addition, few municipalities are willing to take waste from beyond their boundaries. The Bureau's policy of integrated waste management is to encourage moving from single-community landfills to a mix of landfills, energy and

materials recovery facilities and recycling programs which cover regions rather than municipalities.

The Bureau further reorganized and expanded its staff and initiated programs to further this goal.

In FY 85 the Bureau instituted a regional planning staff, with each planner assigned to a specific region. (The Bureau's regions roughly follow the four DEQE regions, with some regions broken down for increased managability.) The responsiblities of the regional planners include: providing technical assistance to municipalities on waste management; acting as liaison between the municipalities and the Commonwealth on solid waste management issues; acquiring primary source data on municipal solid waste generation, collection and disposal, as well as information on private landfills; and facilitating cooperation between and among municipalities in developing environmentally sound and economically viable regional solid waste management strategies. The regional planners' mandate specifically excludes hazardous waste.

A key program administered by the regional planners is the Technical Assistance Awards Program (TAP). TAP is intended to aid communities in solving local and regional solid waste disposal problems. Assistance was provided by the Bureau in the form of grants of the services of solid waste consultants: engineers, financial advisors, various recycling specialists and law firms contracted by the Bureau.

TAP is a competitive grants program. Over 30 applications for assistance were received from groupings which included 130

communities, and awards were made in FY 85 on the basis of objective criteria: 1) a hierarchy of disposal solutions--recycling, energy recovery, environmentally sound landfills, and transfer stations; 2) regional rather than local disposal plans. (List of awards, projects and granting criteria are attached as Appendix Two.) The $350,000 program was funded from the Solid Waste Bond.

D. Drafting the Solid Waste Plan for Massachusetts

The research and policy initiatives of the Bureau were brought into comprehensive form with the drafting and review of the Solid Waste Plan. After a year of research, data-gathering and discussions with a broad range of persons and organizations, the Bureau prepared an initial draft of a Solid Waste Plan for Massacchusetts. The Secretary of Environmental Affairs then convened a Plan Review Committee comprised of representatives of the waste disposal industry (haulers and facility operators), local recyclers, municipal officials, members of environmental groups and representatives from relevant branches of the administration. The Committee met for several weeks, reviewed the plan in great detail, and made suggestions for a number of amendments and changes which were subsequently adopted.

The Committee came to one specific conclusion which drove its other recommendations: total reliance on either existing single-community landfills or planned energy recovery facilities was rejected in favor of integrated solid waste management combining recycling, energy recovery, and state-of-the-art

regional landfills. This goal of integrated solid waste management later became the central philosophy of the Governor's Solid Waste Plan.

E. The Governor's Solid Waste Plan: House 6258.

On May 29, 1985, Governor Dukakis announced the Solid Waste Plan for Massachusetts. This plan was the result of several additional weeks of preparation and review by the administration, including extensive participation by the Bureau.

The Governor's Plan responded to three key areas of need:

--Massachusetts' current methods of waste disposal are threatening our groundwater, and therefore drinking water, and pose an increasing public health threat

--The lack of disposal capacity can act as an impediment to economic development

--Inefficiencies caused by single-community waste disposal are costing our municipalities money.

The Plan proposed a number of legislative solutions, including:

--$5 million allocation to assess all landfills in the Commonwealth, determine the degree of public health threat, and set clean-up schedules

--$25 million allocation to the Commonwealth's existing hazardous waste Superfund, on the premise that polluting solid waste landfills will come under this statute

--$60 million allocation for Waste Management Incentive Loans, which will help municipalities amortize the potential high costs

involved in cleaning up polluting landfills and moving to more environmentally sound waste disposal options, including the siting of regional landfills

--$10 million allocation for recycling, including setting up a number of Regional Recycling Programs, providing technical assistance to towns wishing to develop recycling programs, and the creation of a Waste Reduction Task Force

The Plan also contains important non-monetary provisions:

--Municipalities are to receive the power to enter into new, regional financing arrangements to ease their costs for providing solid waste disposal facilities

--The Bureau will develop through public hearings and cooperation with municipal officials a state-wide solid waste Master Plan for solid waste disposal, and adherence to this plan is to be a primary criterion in the granting of Waste Management Incentive Loans

--DEQE is to receive the power to review siting denials, as well as approvals to prevent municipalities from denying permits to legitimate solid waste facilities for arbitrary reasons.

The Governor's Plan contained the following objectives:

--recycling or reduction of the waste stream by up to one-third

--significant enhancement of energy recovery capacity, with projections indicating that energy recovery could account for the disposal of one-half of the Commonwealth's waste by 1995

--diversion of the rest of our waste to at least ten environmentally sound, regional landfills

The announcement of the Governor's Solid Waste Plan on May 29, 1985 was followed shortly by the introduction of legislation to achieve the goals of the Plan. That legislation became House 6258, and was referred to the Committee on Natural Resources and Agriculture. At the end of FY 85, and in the early weeks of FY 86, the Committee held a series of hearings on H 6258 across the Commonwealth. Bureau representatives attended each hearing, and the Director gave testimony. Bureau staff also prepared briefing materials for representatives of the administration and for the press.

F. Recycling--A Solid Waste Disposal Option

The development of programs for recycling as a significant part of an integrated solid waste management strategy was a second major policy initiative of the Bureau. This policy initiative led to the design of the Regional Recycling Program, and, by the end of FY 85, the first stages of detailed planning, formulation of timelines and budgets, and launching of construction design studies for that program. The research and development of this proposal was carried out by Bureau staff with the assistance of recycling consultants.

The Bureau also received recommendations from the Recycling Advisory Committee during the fall of 1984. The Committee, composed of municipal officials and recyclers from all regions of the Commonwealth, met 8 times in FY 85 and provided valuable input into Bureau recycling policies.

The Bureau's research found that recycling currently accounts for the disposal of 5 percent of the waste stream. Most of that amount is generated by the Beverage Container Law; some 68 local recycling programs account for the disposal of less than one percent of the solid waste generated in the Commonwealth.

There are a number of barriers to the success of recycling: the recyclables collected are of uneven quality, and are not readily available in a steady stream. This prevents local recycling programs from obtaining well-paying, stable markets. Most local programs have little support from their municipalities, and are seen as charitable activities rather than as an environmentally sound, cost-effective method of solid waste disposal.

The Bureau's Regional Recycling Program addressed the lack of markets by proposing intermediate processing facilities for recyclables. These facilities will take glass, cans and paper from the communities and turn them into valuable industrial feedstocks to provide sufficient volume to command top dollar in the marketplace. It addressed the widespread skepticism about the significance of recycling activities by providing for significant savings on disposal costs for participating communities. The program is described in detail in a published Bureau research report, "A Strategy for Regional Recycling." The report also includes a market study which indicates that existing recyclables markets could absorb the output of the currently planned Regional Recycling Programs. Two pilot programs, costing approximately $1.6 million each for facilities construction and public

education activities, will be implemented over the next two years. Participating communities must pass mandatory source separation recycling ordinances or bylaws, collect the recyclables and deliver them to the MRF, and launch a public education campaign to encourage recycling and generate the needed tonnage.

Interest in constructing similar facilities has already developed among vendors. The program is expected to lead to the creation of a new industry in Massachusetts, creating jobs, disposal savings and recycling revenues for communities across the state.

The Bureau conducted a number of other recycling activities in FY 85. A long-range market study was undertaken, and market development policies researched in the areas of government procurement of recycled products, incentives to recycling industries, and a state recyclables marketing co-op. Groundwork was laid for future policy initiatives in the areas of a regional composting facility on Cape Cod and a state-wide tire recycling program. The Bureau plans to issue reports on the results of these studies in FY 86 and to work with the Secretary's proposed Solid Waste Commission to develop legislative initiatives in these areas.

The Bureau also collaborated with a number of other agencies in reviving the Office Paper Recycling Program. This program had run successfully from July 1980 to October 1982, but had ceased when the price of recycled paper fell. The aim of the program is two-fold: in addition to the obvious goal of recycling, it also

provides training for developmentally disabled persons. During FY 85, the program, run through A&F, was again working, and plans were made for the Bureau to take the program and attempt to expand it to a number of municipalities.

G. Formation of Public Education Unit

In FY 85, the Bureau recognized the need to develop public education programs to build support for environmentally sound methods of waste disposal among a number of constituencies, including the general public, municipal officials and solid waste staffs, and members of the Legislature. Accordingly, a public education director was hired in the fall of 1984, and in late spring 2 more public education staff were hired.

The Public Education Unit supported a number of Bureau programs in FY 85. Its activities included:

--editing and producing the Bureau's research reports and other documents

--preparing press releases and media background material for Bureau and state programs, including the Technical Assistance Program and the Governor's Solid Waste Plan, H 6258

--preparing public education materials, including a slide-tape presentation, for the Regional Recycling Program

--responding to correspondence on solid waste issues on behalf of other parts of the administration

--monitoring legislation related to solid waste, answering legislative inquiries on solid waste issues, and preparing briefing materials for representatives of the administration testifying before legislative committees

--co-ordinating internal education efforts within the Bureau to inform Bureau staff of on-going developments in solid waste

--co-ordinating Bureau participation in conferences and other public events

--responding to numerous media inquiries on solid waste issues

H. Administration of the Beverage Container Law

The Bureau administers the Beverage Container Law, or the "Bottle Law". This entails responding to citizen and business inquiries about rights and responsibilities under the law and taking action on citizen complaints of non-compliance.

The Bureau recommended amendments to 301 CMR 4:00, Provision for Recycling Beverage Containers, among which was inclusion of mineral water as required under the Beverage Container Law. At the Bureau's urging, legislation was filed to compel beverage distributors to supply collection services to redemption centers. Legislation is being considered to include "wine coolers" under the law; they are currently excluded and were not in existence at the time the law was passed.

III. HAZARDOUS WASTE MANAGEMENT PROGRAMS

Under M.G.L. Ch. 21D, the Department of Environmental Management is charged with a critical, non-regulatory role in the proper management of hazardous waste generated and/or disposed within the Commonwealth. The Hazardous Waste Management Programs in the Department of Environmental Management aim to provide

guidance, both educational and technical, in the area of hazardous waste materials management and facility siting. Our efforts are divided into three major categories: hazardous waste facility siting, source reduction, and public participation.

A. Generic Environmental Impact Report/Facilities Siting Program.

The GEIR/Facilities Siting effort consists of both a research and a hazardous waste treatment, storage and disposal facilties development program. DEM has utilized outside consultants and staff to gather data, to prepare GEIR's, and to oversee proposals from the private sector. Continued analysis of hazardous waste generation data is undertaken to improve the accuracy of current estimates and future projections, to determine the specific types of treatment, storage, and disposal facilities needed within and promoted by the Commonwealth.

During this fiscal year DEM made significant progress in improving upon the State's approach to the siting of facilities. In response to the market analysis presented in the 1983 GEIR (FY84), identifying types of facilities that could treat Massachusetts' waste streams, a siting proposal was developed. A local firm, Clean Harbors, expressed an interest in building a solvent recovery facility in southeastern Massachusetts. A potential site was found in the Taunton Industrial Park. Through DEM efforts a dialog was established between the develop and key local officials.

The proposal advanced to the point where a filing of a formal Notice of Intent was imminent. Discussion of the intended proposal received fair and objective consideration in the local

press. While some individuals expressed concerns, negative arguments were much more tempered than those experienced in previous siting efforts, and in general Clean Harbors was viewed as a good and forthright company. The expected formal announcement by Clean Harbors did not, however, finally occur. This was due in large part to the company's invalidity to obtain a purchase and sale agreement with local Industrial Development Commission who still controlled the site. Clean Harbors ultimately announced its intention to look elsewhere in the area for a site. Subsequently, they acquired an existing hazardous waste treatment facility in Braintree where they are seeking operating permits.

The Taunton experience, while not resulting in facility siting, was a valuable lesson in how to approach a siting in the future. Future efforts will certainly profit from the Taunton example of upfront community involvement.

In the past two years outside consultants have been used for specialized chapters of the GEIR. Full preparation and writing of the report has been accomplished by Bureau staff. Publication of the 1984 GEIR (FY85) is expected shortly. It focused on metallic wastes and utilized waste data manifested at the DEQE. The report verified previous GEIR estimates of waste generated and waste management needs.

The FY 86 GEIR focuses on the organic waste stream, includes a detailed examination of the regional distribution of hazardous wastes, and explores implications for source reduction and treatment programs. This will better assist identification of

treatment needs, especially in the light of future implications of the more restrictive RCRA amendments of November 1984.

B. Source Reduction Program

In FY 85, the Source Reduction effort became a full program with specific appropriations for staff and consultant resources. The staff performed a preliminary analysis of policy recommendations; continued a statewide industry-specific survey which is nearing completion; implemented a limited technical assistance program; and considered elements of a Source Reduction Plan proposal for the Commonwealth. The final results of the survey, combined with an analysis of economic factors influencing industry's adoption of source reduction, will enable the program to focus on industrial sectors in which the maximum potential for innovation exists.

The Source Reduction work group also organized a conference attended by some 250 industry representatives, held at Boxborough on October 17, 1984. Many from across the nation looked to Massachusetts for leadership in developing state policies to guide industry's source reduction efforts.

C. Public Education/Coalitions Grants Program

DEM's public education program is a program of grants to regional coalitions of environmentalists, industry representatives, citizens, and in some cases representatives of Regional Planning Agencies. This program supports hazardous waste projects at the "grass roots" level and generates materials and

activities which heighten public awareness of the problems of hazardous waste use and disposal.

FY 85 proposals were generated through an RFP, reviewed, and awards totalling $95,000 were made. (See Appendix III) Coalitions prepared several slide shows, videotapes, brochures and pamphlets on proper hazardous waste storage and disposal. Twenty workshops, training sessions and other public events were organized through these coalitions on such topics as proper disposal of household hazardous waste and on understanding the new Right-To-Know Law.

At the close of FY 85 discussions were intitiated with other agencies and with legislators to expand the size and scope of public education activities, particularly for household hazardous waste and an FY 86 request for proposals had been completed and distributed for the existing program.

APPENDIX ONE: SOURCES CONSULTED IN BUREAU WASTE GENERATION AND DISPOSAL SURVEY

1. DEQE Division of Water Supply, "Public Water Supplies which have closed due to contamination," March 20, 1984.

2. DEQE Northeast, Southeast, Central and Western Regional office files and DEQE Regional Engineers.

3. DEQE Division of Water Supply, LeGrand Ranking.

4. Massachusetts Attorney General's Office.

5. Special Legislative Commission on Water Supply, Report on Chemical Contamination, October 1981.

6. McGrath, Silva and Associates, Groundwater Report and Recommendations, Spring 1984.

7. BSWD Landfill Survey 1982-1983

8. T. Irving Sax, Dangerous Properties of Industrial Material.

9. University of Massachusetts Amherst, Ronald L. LaVigne, Leachate Production in the New England Environment.

10. EPA Federal Drinking Water Standards 1984.

11. Massachusetts Environmental Impact Reports:
    #03367 Worcester Expansion
           Greenwood St. Landfill
    #03384 Springfield, Bondi's Island
    #04182 Billerica, Shaffer Island

12. Cape Cod Planning and Economics Development Commission, Landfill Survey, 1982.

13. Consulted with 13 Planning Commission Directors.

14. Spoke to Local Board of Health, Dept. Public Works, and Highway Dept. representatives.

This data was in addition to the Bureau's own waste generation and disposal capacity survey.

APPENDIX TWO: SUMMARY OF PROJECTS AND COMMUNITIES RECEIVING TECHNICAL ASSISTANCE PROGRAM AWARDS FROM THE BUREAU OF SOLID WASTE DISPOSAL AND GRANTING CRITERIA

1) Berkshire County Planning Commission: The award is for technical assistance by the engineering firm Hayden-Wegman, Inc. to conduct a preliminary study on the feasibility of siting a demolition debris and/or paper sludge facility. Illegal dumping of demolition debris in forests, lakes and rivers is a major problem in the Berkshires, especially since the closing of the only nearby demolition dump in Great Barrington in April, 1985. The study will investigate hauling and transfer costs as part of determining site feasibility. Recycling consultants, Ferrand and Scheinberg Assoc., will study the recycling options for demolition materials generated in this region.

Berkshire County Planning Commission communities receiving this award include: Alford, Egremont, Great Barrington, Lee, Lenox, Monterey, Mount Washington, New Marlborough, Sandisfield, Sheffield, Stockbridge, Washington, West Stockbridge.

Amount of Grant: $8000 Hayden-Wegman; $4000 Ferrand & Scheinberg.

2) Northern Berkshire Solid Waste Disposal Committee: The engineering firm of Hayden-Wegman, Inc. will be assigned to conduct a feasibility study on the best method of regional trash disposal--e.g., a small, regional, resource recovery facility; a regional landfill; or transfer stations. The recycling consulting firm of Ferrand and Scheinberg will study the best way to incorporate recycling into the region's solid waste disposal system.

Communities of the Northern Berkshire Solid Waste Disposal Committee include: Adams, North Adams, Florida, New Ashford, and Williamstown, Cheshire.

Amount of Grant: $30,000 Hayden-Wegman; $1000 Ferrand & Scheinberg

3) Franklin and Hampshire Counties and the Towns in the area of the Pioneer Valley: Financial and legal services will be awarded to Franklin and Hampshire Counties and to the Monson area towns to aid in their evaluation of and potential negotiations with the planned HERCO resource recovery facility. Bureau staff will provide assistance to the communities by studying the options for

siting a Materials Recovery Facility (MRF) in the Pioneer Valley and in helping communities adapt their trash collection systems to include recyclables. The engineering firm Hayden-Wegman, Inc. will analyze the transportation method options for waste feeding into HERCO and will determine the most appropriate transfer station sites. The public financial advisors, J.J. Lowrey, Inc., will provide the towns with information concerning equity financing, tipping fee escalation projections, and assumption of risk provisions.

Communities of Franklin and Hampshire Counties and the Pioneer Valley include: Monroe, Rowe, Heath, Colrain, Shelburne, Charlesmont, Hawley, Buckland, Ashfield, Conway, Deerfield, Whately, Sunderland, Montague, Cummington, Worthington, Plainfield, Middlefield, Huntington, Chesterfield, Goshen, Williamsburg, Leyden, Bernardston, Northfield, Warwick, Orange, Erving, Gill, Greenfield, Leverett, Shutesbury, New Salem, Wendell, Easthampton, Hadley, South Hadley, Amherst, Granby, Pelham, Belchertown, Westhampton, Southampton, Northampton, Hatfield, Athol, Phillipston, Petersham, Palmer, Monson, Ware, Royalston and Warren.

Amount of Grant: $20,000 J.J. Lowrey for Franklin and Hampshire Counties; $8000 Hayden-Wegman for Franklin County; $15,000 Hayden-Wegman for Hampshire County; $8000 Hayden-Wegman for Pioneer Valley communities; $10,000 legal services for Franklin County; $10,000 legal services for Hampshire County; $5000 legal services for Pioneer Valley communities.

4) Shirley, Groton, and Pepperell: Technical assistance by Bureau of Solid Waste Disposal staff will be provided to the town of Shirley to scope a feasibility study for the development of a small resource recovery facility at MCI-Shirley. The scoping will include an analysis of how recycling can be integrated into the waste system feeding into the resource recovery facility. The Commonwealth's Department of Correction has legislation pending to fund the $50,000 feasibility study. The engineering firm Hayden-Wegman, Inc. will provide technical assistance to conduct back-up landfill analysis and to help review the draft feasibility study.

The towns of Shirley, Pepperell and Groton are included.

Amount of Grant: $20,000 Hayden-Wegman; $5000 legal services

5) Worcester and other Central Massachusetts communities: Technical assistance by the engineering firm Metcalf and Eddy, Inc. will be provided to the City of Worcester to review the Environmental Impact Report of Signal RESCO's planned resource recovery plant in Millbury and to monitor the progress of plant construction. Bureau staff will study the feasibility of a

Materials Recovery Facility at the Millbury site and will provide recommendations for integrating provisions for recycling in Signal RESCO's contracts with each town.

Worcester and Central Massachusetts communities included are: Worcester, Berlin, Grafton, Westborough, Holden, Rutland, Lancaster, Northborough, Shrewsbury, Southborough and Millbury.

Amount of Grant: $30,000 Metcalf and Eddy

6) Towns southwest of Metropolitan Boston. Technical assistance by the recycling consultants Self-Reliance, Inc. will be awarded to conduct a study on the feasibility of siting a Materials Recovery Facility in this region of the state. In-house assistance will be provided by the Bureau of Solid Waste Disposal on models for local recycling ordinances and bylaws.

Communities southwest of metropolitan Boston receiving this award include: Holliston, Ashland, Sherborn, Hopkinton, Medway, Milford, Millis and Bellingham.

Amount of Grant: $8000 Self-Reliance, Inc.; $1000 legal services

7) Barnstable County Solid Waste Task Force: Technical assistance by the engineering firm Metcalf and Eddy, Inc. will be awarded to study the transportation costs for Cape towns to send their trash to the planned SEMASS waste-to-energy plant in Rochester. Recycling assistance will be provided by Self-Reliance, Inc. to study the possible siting of a Materials Recovery Facility on the Cape; to estimate quantities of recyclable materials in the area; and to evaluate collection methods for source-separated materials. Self-Reliance will also conduct a feasibility study of composting brush and yard waste, with or without sludge.

Barnstable County Solid Waste Task Force communities receiving this award include: Chatham, Eastham, Orleans, Provincetown, Truro and Wellfleet, Brewster, Dennis, Harwich, Yarmouth, Barnstable, Sandwich, Bourne, Falmouth and Mashpee.

Amount of Grant: $30,000 Metcalf and Eddy; $20,000 Self-Reliance, Inc.

8) Martha's Vineyard Refuse Disposal and Resource Recovery District: The recycling consultants of Self-Reliance, Inc. will conduct a study of recycling (including an examination of collection options) waste stream reduction, and "on-island" waste disposal solutions which avoid the high cost of transporting waste to the mainland. The study will be support local efforts to close landfills and develop a regional balefill at Tisbury. The balefill, an expansion of an existing landfill, would allow

Martha's Vineyard towns to consolidate trash disposal at one site and to close other landfills while the towns explore other disposal alternatives, such as resource recovery.

Martha's Vineyard Refuse Disposal and Resource Recovery District includes the communities of: Chilmark, Edgartown, Gayhead, Oak Bluffs, Tisbury and West Tisbury.

Amount of Grant: $600 Self-Reliance, Inc.

N.B. The legal services portions of the grants had not been assigned to specific firms by the end of FY 85. The following firms will participate in the program: Gaston, Snow & Ely, Bartlett; Mintz, Levin, Cohn, Ferris, Glovsky, & Popeo; Brown, Rudnick, Freed & Gesmer.

GRANTING CRITERIA:

I. Regional Proposals First

II. Order of Priorities Among Regional Proposals:
    a. Recycling
    b. Resource Recovery
    c. Transfer Stations
    d. Landfills

III. Regional Recycling and/or Resource Recovery Projects which should receive most consideration should include one or more of the following characteristics:
    a. Furthers BSWD plan for the region
    b. Greatest capacity impact, largest number of towns
    c. Does not conflict with other proposals
    d. Integrates with other TAP proposals
    e. Most well-developed of the proposals in terms of project for which funding is being sought.

APPENDIX THREE: SUMMARY OF COALITIONS' PROJECTS RECEIVING GRANTS FROM DEM

A. SOUTHEAST REGION

1. Cape Cod Planning and Economic Development Council

Contact: Robert E. Robes 617-362-2511

The Cape Cod Planning and Economic Development Council will inventory hazardous waste generators and waste streams in Barnstable County. The Council will also develop information from Standard Industrial Classification codes, from other documents available from EPA, DEQE and from the "Summary of Barnstable County Business Patterns" and "County Business Patterns in Massachusetts". The Council also plans to develop a survey questionnaire to be sent to potential generators to assess their attitudes toward alternative collection methods.

2. Southeastern Massachusetts Task Force on Environmental Management

Contact: Kathy MacRae 617-824-1367
Edith DeMello 617-996-9871
Dick Hailer 617-999-8007

The Southeastern Massachusetts Task Force will be concentrating their efforts in three areas. The first is in the continuation of the public education efforts on hazardous waste issues in Southeastern Massachusetts by focusing attention on a common household hazardous waste, motor oil. The second area will involve Industrial networking. The Coalition will expand the already existing network of industrial leaders concerned about hazardous waste management issues to include smaller generators. The third area of concentration will increase awareness of hazardous waste management issues among professionals, especially health care workers and teachers.

B. BOSTON REGION

1. City of Boston

Contact: Ken Marvis 617-868-2727

This coalition will identify the types of businesses that make up the population of small quantity generators in the city, and identify other projects and organizations that have tried waste pickup programs. They will also develop a potential fee system, routes, schedules for pickup and estimates of potential costs and savings to participants in a city wide pickup system.

The second part of this project will involve public education for a city-wide collection system: Develop two booklets for users of the proposed pickup system and for providing information on the model program so that it can be replicated in other areas. The completion of this project will involve the creation of a presentation for interested businesses, industry and trade groups. This presentation will be given twice to interested generators to educate them on the use of the system.

2. Clean Water Action Project

Contact: Polly Hoppin 617-227-1020

The Clean Water Action Project will develop two public education workshops. The topics will be agreed upon by DEM and CWAP at a later date. Topics may include source reduction, groundwater contamination, etc....A plant tour will also be included in one of the workshops.

C. NORTHEAST REGION

1. Northeastern Massachusetts Coalition for Safe Waste Management

Contact: Alan MacIntosh 617-374-0519
Bob Flynn 617-454-8021

Underground fuel/waste storage tank inventory:

Ten commandments in the Merrimack Valley area will be inventoried in order to broaden the data base for, and awareness of hazardous materials storage and disposal in the area.

Public Education TV mini-spots:

Use of cable television as a medium for information exchange and dissemination to individual households on hazardous waste issues. Script and topics to be agreed on by the coalition and DEM.

D. CENTRAL REGION

1. Central Massachusetts Coalition for Safe Waste Management:

Contact: Evelyn Silver 617-793-5551

Right to Know: Communities and Municipal Employees

A meeting on the Right to Know law will be held in February which will include presentations on:

- brief overview of the law
- how to get information under the provisions of the law
- how to make use of the information
- case studies

Worcester area small quantity generators:

Students at Worcester Polytechnic Institute are working with the coalition to inventory small quantity generators in the Worcester area to find out what business produces which types of wastes. With this information, the coalition will choose one or two types of businesses to structure workshops around. Workshops will include presentations on compliance, source reduction, and other information of interest to a particular type of business.

2. Western Massachusetts Coalition for Safe Waste Management

Contact: Chris Curtis 413-781-6045

Plant tour brochure:

Develop a brochure on how to organize and hold an industrial plant tour using information on previous plant tours held across the Commonwealth, logistics for organizing tour components, and accessing the media to increase public awareness of the tour.

Small generators bargaining cooperative:

Feasibility study to determine the potential for a regional small generator bargaining cooperative for disposal of hazardous wastes at reduced group rates. Survey of small businesses and municipalities interested in a cooperative, as well as identifying needs specific to certain types of businesses.

E. WESTERN MASSACHUSETTS

1. University of Massachusetts Safe Waste Management program

Contact: Michael Kane 413-545-2049

The coalition will provide technical assistance for small quantity generators in Franklin County. Workshops will be held and the coalition will explore a system for a region wide collection of hazardous waste from small quantity generators. Industrial plant tours will be given by the coalition.

2. Berkshire County Safe Waste Management Program

Contact: Bob Spencer 413-442-1521

Small quantity generator workshops:

Organize a workshop for dry cleaners operating in Berkshire County and one for educational institutions to explain safe handling, disposal and source reduction techniques.

Dry Cleaner waste collection program:

Implement a waste pickup system for dry cleaners in Berkshire County using information learned about existing collection networks.

Educational institution waste pickup program:

Determine whether a waste collection system, such as the one used at the University of Massachusetts in Amherst for their laboratories, can be applied on a regional basis.

Summary FY85

COALITIONS FOR SAFE WASTE MANAGEMENT GRANTS

Coalition Name	Grant
Berkshire County	$10,000
Boston Coalition	11,000
Cape Cod Planning Commission	6,000
Clean Water Action Project	3,000
North Middlesex/Merrimack	13,000
Regional Environmental Council	14,000
Southeastern Massachusetts Univ.	24,950
Univ. of Massachusetts-Amherst	6,000
Western Massachusetts Coalition	7,000
Total	$94,950

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FORESTS & PARKS

PLANNING &
DEVELOPMENT

WATERWAYS

ANNUAL REPORT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF WATERWAYS

FISCAL YEAR 1985

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATERWAYS
ANNUAL REPORT - FISCAL YEAR 1985
JOHN J. HANNON, P.E., DIRECTOR

PURPOSE

The Division of Waterways is responsible for improving, maintaining and protecting tidal and non-tidal rivers and streams, harbors, tidewaters, shores and foreshores and along a public beach, including the Merrimack and Connecticut Rivers, under Chapter 91 of the General Laws. In addition, the Division is authorized through special legislative acts and resolves to perform functions that are beyond the scope of Chapter 91.

A list of the chief functions and responsibilities of the Division are as follows. The Division:

I. Under Chapter 91

a. administers the waterways design and construction program which includes projects such as shore protection, harbor improvements and development, stream clearance, flood control, renovation and repairs to municipal dams, repairs and improvements to the State owned piers at Gloucester, Fall River, and New Bedford. The design and supervision of construction is performed by the Division's staff engineers or by consultant engineers.

b. maintains record information of activities on the great ponds, rivers, tidelands, shoreline, and

various land parcels and or easements obtained by the Commonwealth, for the construction of items mentioned in Item a.

c. acts as the coordinating agency for Federal harbor development, shore protection, erosion, and flood control, stream improvements projects which are done on a cooperative basis (i.e. in some cases, only fiscal cooperation and in other cases, both fiscal and engineering cooperation).

d. prepares and monitors Federal State, and Municipal Agreements for federal projects undertaken by the Corps of Engineers.

e. is in charge of the State Pier in New Bedford.

f. leases the State Piers at Gloucester and Fall River.

II. Under Special Legislation

a. acts as the Contract agency for the Public Access Board. As such, represents the Chief Engineer at Board Meetings. Designs and supervises construction of public boat launching sites approved by the Board.

b. in accordance with the provisions of Chapter 501 of the Acts of 1968 as amended, acts as the Contract agency to acquire land to design and

construct capital improvements and/or new facilities on any ocean beach, ocean reservation, swimming pool, or skating rink outside the Metropolitan District Commission area.

c. administers the projects funded annually and authorized by the "Harbors and Inland Waters Maintenance Program" established by Chapter 870 of the Acts of 1970. The work includes design and construction of maintenance dredging, erosion and flood control projects, cleaning harbors, inland waters and great ponds to reduce hazards to navigation enhance safety and the envronmental protection of these bodies of water.

d. administers the design and construction of Capital Improvements identified in Capital Outlays passed by the Legislature.

e. assists the Office of Coastal Zone Management in administering the Coastal Facilities Program as authorized under Chapter 589 of the Acts of 1983 and the Grant for the Town of Hull for Allerton Bluff as authorized by Chapter 233 of 1984, Section 32.

f. is represented on the following Commissions or Boards. Public Access Board and Boston Harbor Commission (Legislative).

g. is administering, with the assistance of the Office of Coastal Zone Management, the study of a generic disposal site for dredge materail in Cape Cod Bay.

FY'85 MAJOR DEVELOPMENTS

On July 1, 1983, the Division of Waterways was reorganized. Under Chapter 589 of the Acts of 1983 certain functions of the Division were transferred to the Department of Environmental Management from the Department of Environmental Quality Engineering; authority to construct projects and facilities, the authority to dredge the waterways of the Commonwealth, the ownership and management of state piers, the ownership and management of certain land and the dam maintenance and safety program. The regulatory functions of the Division relating to licensing and permitting structures or activities within the tidelands of the Commonwealth remained within the Department of Environmental Quality Engineering.

Seventeen (17) projects were completed during FY 1985 and there were five (5) projects under construction at the close of the fiscal year. Improvements to the fender system and the truck scale at the New Bedford State Pier is one major improvement completed that will enhance the use of this busy facility. The $2 million marina at Taylor's Point in Bourne was completed, accepted, and turned over to the Town. Emergency corrective action was taken on two (2) dams. One owned by the City of Pittsfield on Lake Pontoosic and the other at Lake Ashmere owned by the Department.

In Northampton, reconstruction of the Leeds Meadow Dam commenced at a cost of approximately $605,00. The completion of this project, anticipated

in October of 1985 will greatly improve the City's water supply system.

Other significant projects completed include five (5) dredging projects in Boston Harbor totalling $900,700, one dredging project in Madaket Harbor in Nantucket, and two erosion control projects in Pittsfield and Williamstown.

The design program consisted of sixty-four (64) projects which includes major projects such as a marina in Sandwich, reconstruction of the commuter pier at Hewitt's Cove in Hingham, improvements to the Fall River State Pier, Dam reconstruction in Templeton, flood control improvements in Sales Creek in Revere, dredging projects in Boston Harbor, Hingham, Quincy, Bourne, and the relocation of the Bourne Pond Outlet in Falmouth.

PROJECT SUMMARY

Seventeen (17) construction projects totalling $4,425,100 were completed in FY 1985 and five (5) projects were under construction at the end of the Fiscal Year bringing the total construction cost for the year to $5,342,000. Of these expenditures 24% was spent on dredging, 39% on Marinas, piers, and boatramps, and 15% on Dam projects.

Sixty-four (64) design projects were undertaken at a total cost of $2,467,500 and representing approximately $19,594,500 in construction projects. Of these design costs 25% was spent on flood control, 37% on dredging, 13% on Marinas, piers and boatramps, and 14% on Dam projects.

Fifteen (15) new construction projects were advertised at a total cost of $3,149,096.

A breakdown of all projects, by catagories, is shown in this report.

RECREATION FACILITIES

Project under design July 1, 1984 to June 30, 1985.

Contract Number	Location	Description	Design Cost
214-B	Northampton	Skating Rink	$143,615

Design of proposed skating facility in Northampton was complete. Project advertised for bid proposals, but project not awarded due to lack of sufficient funds to complete proposed projects. Project under redesign consideration.

RIVERS AND HARBORS PROGRAM

During Fiscal Year 1985, a process for identifying needed repairs and improvements to the Commonwealth's waterways was reintroduced after five years, redesigned and undertaken.

Through the Rivers and Harbors Program, over fifty (50) communities seeking $30 million in projects applied for the $3 million that was available for such waterways projects as dredging, pier rehabilitation and repair and protection of shorelines and riverbanks damaged by major storms and floods. During the year, communities applied for the funding and presented their petitions at public hearings held in Boston, Fall River, Holyoke and Pittsfield. Projects were then selected based on an extensive interagency review and evaluation of each project's merits using standardized criteria. Generally, those projects with the greatest public benefit, that were environmentally acceptable and feasible, that served water-dependent uses, and for which there was the greatest public support (including a commitment to share the costs of the project) had the greatest chance to be selected.

Twenty-four (24) projects were selected and the applicants were notified of their selection by letter dated June 21, 1985. The total projects cost is $6,585,100 that will be cost shared by the applicants and the Commonwealth, represented by the Department, acting through the Division of Waterways.

A list of the selected projects is shown in this report.

NEW BEDFORD STATE PIER

The following is a descriptive narrative of State Pier - New Bedford operations during fiscal year July 1984 - June 1985.

During this period 56 vessels that handled either ocean cargo or passengers docked at the facility. Twenty-four of these vessels were cargo ships and thirty-two were passenger vessels. From these types of ships 9,600 short tons of cargo were handled for a total charge of $14,400. The docking fees for cargo ships totaled $15,800. A total of 5,800 passengers came through the facility, 3,600 of which were assessed a fee for embark/disembark to total $5,400. Docking charges for these ships totaled $5,760. The aggragate figures for this phase of the operation are:

Fifty-six (56) voyages for a total revenue charge of $41,360.

A total of eighty (80) fishing vessels used the docking facilities for a variety of authorized reasons and paid a total of $4,000 for such use. Further, two research vessels used the facility and were charged a total of $1,511.

Total income from these miscellaneous visits was $5,511.

Demurrage charges assessed various cargo handling companies totaled $7,660. Commodities included both containers and lumber.

During this period potable water was sold to both the United States Coast Guard and visiting vessels. Total income from these sales was $5,785.

In addition to vessel charges the facility housed five tenants who paid a total of $34,044 for rent and space usage. The United States Coast Guard paid lease fees of $33,840. Total for this part of revenue was $67,884.

A special rent fee was paid by the International Commercial Fisheries Show Committee for use of the building and parking area facilities; a total of $2,440.

Truck scale activity was 691 units weighed for a total charge of $2,157.

The cargo buildings were in use daily for all of the fiscal year. The wooden, one story building is occupied by Portuguese American Export Lines on a lease basis. The steel and concrete, two level building is normally used for cargo handling and storage and for the storage of cargo handling equipment. The building was used by the Commercial Fisheries Show as an exhibition building housing displays relevant to the show for a period of one week in April.

The newest construction was used to stage ocean cargo, both outbound and inbound throughtout the year. All of the cargo handled at the facility funnels through this building. This building was also used in conjunction with the Commercial Fisheries Show. The building is also used by some non-profit organizations periodically for one day events, at no charge.

Total monies expended during this fiscal year for maintenance, repairs and equipment were less than $2,000. The total income realized by the operation during the period was $132,797.

DESIGN CONTRACTS SUMMARY

DIVISION OF WATERWAYS - FY 1985

TYPE	NUMBER OF PROJECTS	DESIGN COST	PERCENT OF TOTAL DESIGN COST	ESTIMATED CONSTRUC COST
Flood Control	19	$ 609,400	25%	$5,102,00
Dredging	16	$ 915,600	37%	$5,731.500
Marinas/Piers Boat Ramps	8	$ 314,500	13%	$3,619.500
Erosion Control/ Bank Stabilization/ Shore Protection	6	$ 214,100	9%	$1,403,700
Dam Rehabilitation	11	$ 347,600	14%	$2,639,000
State Piers	4	$ 66,300	2%	$1,098,800
TOTALS	64	$2,467,500	.	$19,594,500

FORESTS & PARKS
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CONSTRUCTION PROJECTS SUMMARY

DIVISION OF WATERWAYS - FY 1985

TYPE	NUMBER OF PROJECTS	CONSTRUCTION COST	PERCENT OF TOTAL CONSTRUCTION COST
Flood Control	1	$ 192,000	4%
Dredging	7	$1,271,300	24%
Marinas/Piers/ Boat Ramps	2	$2,100,550	39%
Erosion Control/ Bank Stabilization/ Shore Protection	6	$ 447,900	8%
Dam Rehabilitation	4	$ 837,000	15%
State Piers	2	$ 493,300	10%
TOTALS	22	$5,342,050	

DESIGN PROJECTS

July 1, 1984 to June 30, 1985

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1985
2857-D	Falmouth Bourne Pond	Erosion control Relocate outlet	57,000	888,900	99% Construction phase remains
2864-D	Revere, Sales Creek	Flood Control	18,000	100,000	99% Modification META Culve
2871-D	Templeton - E. Templeton Dam	Dam Restoration	100,000	1,000,000	85% Final design in progress
2887-D	Boston/Milton Neponset River	Dredging	25,000	206,900	Complete
2908-D	Bourne Taylors Point	Marina Construction	171,000	2,030,400	Complete
2984-D	Maynard/ Assabet	Sludge Removal	23,900	270,000	90% Project Terminated Local problems not resolved
2975-D	Revere Sales Creek	Flood Control	180,900	2,000,000	60% awaiting completion Environmental review for sta construction
2976-D	Gt. Barrington Housatonic River	Erosion Control	18,000	200,000	99% Construction FY86
2993-D	Salem Pickman Park	Erosion Control	17,500	64,800	99% Construction phase
2997-D	New Bedford State Pier	Fender System Replacement	18,500	440,000	Complete
3003-D	Revere, Green River	Flood Control	48,000	700,000	92% Await Completion of EI in Stage Cons
3007-D	Pittsfield Housatonic River	Flood Control	23,300	168,000	Completed
98 PA (Public Access)	Dartmouth Apponegansett River	Boat Ramp	8,800	70,100	Complete

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 198
3008-D	Hull Straits Pond	Flood Control	9,200	24,000	99% Under Construction
3013-D	Bridgewater Matfield River	Odor & Sludge removed	99,600	150,000	99% Construct ion FY86
3015-D	Winthrop/ Harbor	Dredging	40,500	185,500	Complete
3016-D	Boston/ Harbor	Dredging (3 sites)	46,000	337,500	Complete
3020-D	Boston/ Winthrop	Dredging Study 4 locations	146,000	1,800,000	85% Project deferred til disposal sites found
3022-D	Webster Webster Lake	Flood Control	32,500	300,000	85% Construct ion FY86
3025-D	Boston Naponset River	Dredging (2 sites)	53,800	160,000	Completed
3027-D	Nantucket Madaket Harbor	Dredging -	29,000	223,200	Complete Pending clai by sub-contractor
3030-D	Essex Essex River	Dredging	50,700	300,000	40%
3031-D	Oxford McKinstry Pond	Dredging	20,000	147,400	Completed
3032-E	Boston/Revere Sales Creek	EIR study flood control construction projects	42,000	N/A	100% Complet
3034-D	New Bedford State Pier	Truck Scale Replacement	8,600	58,800	Completed
3035-D	Hudson Washington St. Dam	Rehabilitation	13,000	110,000	90% construc ion FY86
3040-D	Marlboro Fort Meadow Dam	Rehabilitation	30,600	350,000	80% construction FY86
3044-D	Quincy/ Quincy Bay	Dredging	31,400	321,000	95% Construction FY86

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1985
3050-D	Winthrop, Gr. Head Drumlin	Slope Stabilization	35,000	250,000	90% Construction FY86
3051-D	Milton, Pine Tree Brook	Flood Control	13,000	225,000	90% Construction FY86
3054-D	Milton, Pine Tree Brook	Flood Control	9,000	20,000	90% Construction FY86
3055-D	Wellfleet	Bulkhead Replacement/Town Pier	18,800	200,000	95% Under Construction
3056-D	Southwick Great Brook	Flood Control Stream Improvement	23,700	200,000	95% Construction FY86
3057-D	Mendon Meadow Brook	Flood Control Stream improvement	19,100	140,000	95% Construction FY86
3058-D	Hingham Hewitt's Cove	Pier Rehabilitation	24,200	429,000	95% Construction FY86
3060-D	Clinton, Counterpane Brook	Study/Flood Protection	35,000	N/A	30%
3061-D	New Bedford No. Terminal	Study of Bulkhead	50,000	N/A	30%
3062-D	Sandwich	Marina/East Boat Basin	34,300	600,000	85% Construction FY86
3064-D	Upton Wildwood Lake	Dam Repair	7,500	29,000	70% Construction FY86
3066-D	Hingham Harbor	Dredging	49,000	750,000	95% Construction FY86
3067-D	Hull Nantasket Pier	Pier Repair	8,700	40,000	Construction Underway
3068-D	Winchendon Lake Monomonac	Dam Repair	25,000	175,000	70% Construction FY86
3071-D	North Adams Union St. Brk.	Flood Control Drainage Improvement	34,300	200,000	60% Construction FY86
3072-D	Norwood Meadow Brook	Flood Control	37,400	300,000	35% Construction FY86

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1985
3073-D	Beverly Bass River	Proposed Dredging	33,400	300,000	45% Construction FY86
3074-D	Bourne Maritime Acad.	Dredging/Berthing Platform	39,700	225,000	100% Construction FY86
3075-E	Hull Allerton Bluff	Erosion Study	36,600	N/A	65%
3076-D	Framingham Fenwick St. Dam	Dam Rehab	35,700	300,000	50% Construction FY87
3078-D	Cape Cod Bay	EIR Disposal Sites Study	183,000	N/A	35%
3079-D	Fall River State Pier	Replacing Fender	23,300	350,000	85% Construction FY86
3081-D	Rehoboth Perryville Dam	Dam Repair	24,600	135,000	30% Construction FY87
3082-D	Fall River State Pier	Roof Construction	15,900	250,000	40% Construction FY86
3083-D	Taunton Cobb Brook	Flood Control	14,600	150,000	Negotiations Completed
3085-D	Woburn Horn Pond	Flood Control	39,400	450,000	Contract Being Processed
3090-D	New Bedford Pope's Island	Proposed Marina	30,000	N/A	Contract Being Processed
3093-D	Manchester	Proposed Harbor Dredging	44,600	355,000	Survey to Start July, 1985
104- PA Public Access	Barnstable Harbor	Launching Ramp	18,700	250,000	Survey to Start July, 1985
3094-D	Attleboro Lee's Pond	Flood Control	17,000	73,000	Contract Being Negotiated
3096-D	Hinsdale Lake Ashmere	Dam Repair	24,200	50,000	Contract Being Processed
3099-D	Spencer Lake Whittemore	Dam Repair	24,000	90,000	Contract Being Negotiated

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1985
3100	Clarksberg Hoosic River	Flood Control Sediment Removal	13,000	37,000	Contract Being Processed
3103-D	Hopedale Spindleville Pond	Proposed Dredging Study	25,000	N/A	Contract Being Negotiated
3106-D	Norwood Ellis Pond	Dam Rehab	38,000	400,000	RFP sent out
3113-D	Amherst Podick Brook	Flood Control, Dredging	IN HOUSE	15,000	Permit Process Underway
		TOTAL	$2,467,500	$19,594,500	

TOTAL PROJECTS = 64

RIVERS AND HARBORS PROJECT AWARDS

NICIPALITY	DESCRIPTION	EST. TOTAL PROJECT COST	STATE SHARE	MUNICIPAL SHARE
	(SOUTHEASTERN MASS)			
URNE	Dredging Channel to Redbrook Harbor	$132,00	$100,000	$32,500
NNIS	Dredging Adjacent to Town Pier	48,600	22,000	26,600
NNIS	Stabilization of Swan Pond Inlet	74,000	50,000	24,000
GARTOWN/ K BLUFF	Dredging Channel in Sengekontacket Pond	260,000	200,000	60,000
RWICH	Dredging Channel to Allen Harbor	200,000	150,000	50,000
NGHAM	Dredging Anchorage Area in Hingham Harbor	400,000	300,000	100,000
LBROOK	Feasibility Study to correct the water quality of Beaver Brook	37,000	20,000	17,000
SHPEE	Dredging in Popponnesset Bay	200,000	150,000	50,000
W BEDFORD	Extension of Steamship Pier	$1,500,000	180,000	$1,320,000
OVICENTOWN	Dredging in vicinity of MacMillan Wharf	1,200,000	100,000	1,100,000
ITUATE	Dredging in Scituate Harbor	160,000	120,000	40,000
REHAM	Design of Onset Pier Reconstruction	75,000	50,000	25,000
RMOUTH	Dredging Channel to Bass River	174,000	120,000	54,000
	(NORTHEASTERN MASS)			
STON	Planning and design of Harbor Park, Inner Harbor	400,000	200,000	200,000

RIVERS AND HARBORS PROJECT AWARDS

MUNICIPALITY	DESCRIPTION	EST. TOTAL PROJECT COST	STATE SHARE	MUNICIPAL SHARE
ANVERS	Improvements to Docking Facilities at the Town Pier in Crame River	$38,000	$20,000	$18,000
FRAMINGHAM	Reconstruction of Mill St. Culvert	67,500	$35,000	32,500
SAUGUS	Dredging of Saugus River Cost will be Shared by Corps of Engineer, State and Municipality cost & this report reflect only state & Local share	$300,000	$100,000	$200,000
	(CONNECTICUT VALLEY)			
BERNARDSTON	Dredging Channel in the Fall River	$108,000	$50,000	$58,000
MONTAGUE	Design Boat Launching, Facility @ Turner's Falls	100,000	50,000	50,000
EAST HADLEY EASTHAMPTON HOLYOKE NORTHAMPTON SOUTH HADLEY	Installation of Channel markers in the Holyoke pool section of the Connecticut River	20,000	10,000	10,000
NORTHAMPTON	Slope Stabilization of the Connecticut River (West Bank)	$ 350,000	50,000	$300,000
SPRINGFIELD	Restoration of the Porter Lake System in Olmstead Park	550,000	$275,000	275,000
WILLIAMSTOWN	Bank Stabilization of the Green River	90,500	50,000	40,500
BERKSHIRE COUNTY	Clearing & cleaning of the Housatonic and the Hoosic River Basins	$100,000	$100,000	(will provide) (Labor & equip.)
TOTAL		$6,585,100	$2,502,000	$4,083,100

TOTAL PROJECTS = 24

PROJECTS ADVERTISED

JULY 1, 1984 to JUNE 30, 1985

DATE	CONTRACT NUMBER	MUNICIPALITY	DESCRIPTION	BID PRICE
7/17/84	3042	Nantucket	Madaket Harbor, Dredging	$194,480
7/24/84	3037	East Boston	Boston Harbor, Dredging	$267,675
7/24/84	3045	Boston/Dorchester	Neponset River, Dredging	$172,500
WAIVED	3053	Pittsfield	Emergency Repairs to Pontoosic Dam	$ 46,906
8/27/84	3041	Winthrop	Winthrop Harbor, Dredging	$209,100
9/25/84	3006	Salem	Beach Restoration of Pickman Park	$ 60,269
10/9/84	3063	Oxford	Dredging of McKinstry Pond	$176,775
11/20/84	3070	East Boston	Boston Harbor, Dredging	$ 80,984
11/20/84	3049	Northampton	Restoration of Leeds Meadow Dam	$624,930
WAIVED	3065	Hull	Emergency Repairs at Nantasket Pier	$ 1,600
WAIVED	3080	Pittsfield	Emergency Reconstruction of Retaining Walls at Pontoosic Dam	$193,620
WAIVED	3092	Hinsdale	Emergency Work at Lake Ashmere Dam	$ 12,500
4/9/85	3084	Hull	Repairs to Bulkhead at Nantasket Pier	$ 40,609
6/18/85	3048	Falmouth	Reconstruction of Bourne Pond Outlet	$888,888
6/25/85	3086	Wellfleet	Reconstruction of Bulkhead at Town Pier	$178,260

TOTAL VALUE OF PROJECTS ADVERTISED $3,149,096

TOTAL PROJECTS = 15

PROJECTS COMPLETE AS OF JUNE 30, 1985

CONTRACT NUMBER	MUNICIPALITY	DESCRIPTION	TOTAL COST
103 Public Access	Dartmouth	Public Access Site of Apponeganset Bay	$ 70,100
2921	Bourne	Taylor's Point Marina	$2,030,450
3002	Boston/Milton	Dredging in Neponset River in Vicinity of Milton Town Landing	$206,900
3024	Williamstown	Erosion Control on Green River	$158,300
3026	Pittsfield	Flood Control on Housatonic River	$168,000
3037	East Boston	Dredging Boston Harbor	$267,400
3038	New Bedford	Truck Scale at New Bedford State Pier	$ 58,800
3039	New Bedford	Fender System at New Bedford State Pier	$434,500
3041	Winthrop	Dredging in Winthrop Harbor in Vicinity of Public Access Site	$185,500
3042	Nantucket	Dredging Channel in Madaket Harbor	$223,200
3045	Boston	Dredging Harbor in Neponset River (Outer Reach)	$160,000
3053	Pittsfield	Emergency Dam Repairs at Pontoosic Lake	$ 26,000
3063	Oxford	Dredging in McKinstry Pond for Silt Control	$147,400
3065	Hull	Investigation of Failed Bulkhead at Nantasket Pier	$ 1,600
3070	Boston	Dredging in Boston Harbor	$ 80,900
3080	Pittsfield	Dam Repairs at Pontoosic Lake	$194,300
3092	Hinsdale	Investigation of Failed Dam on Lake Ashmere	$ 11,800
TOTAL VALUE OF COMPLETED PROJECTS			$4,425,100

TOTAL PROJECTS = 17

PROJECTS UNDER CONSTRUCTION AS OF JUNE 30, 1985

CONTRACT NUMBER	MUNICIPALITY	DESCRIPTION	TOTAL COST
3006	Salem	Beach Rehabilitation, Pickman Park	$ 64,800
3049	Northampton	Rehabilitation of Leeds Meadow Dam	$604,900
3043	Hull	Flood Control Structure Repair	$ 24,000
3084	Hull	Repair to Failed Bulkhead at Nantasket	$ 36,200
3086	Wellfleet	Bulkhead Repair and Dredging	$187,000
TOTAL VALUE OF WORK UNDER CONSTRUCTION			$916,900

TOTAL PROJECTS = 5

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ANNUAL REPORT

DIVISION OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

for the

FISCAL YEAR ENDING - June 30, 1985

INTRODUCTION

Chapter 21, Sections 8 and 9 of the General Laws of the Commonwealth, enacted in 1956, established the existence, the duties and the jurisdiction of the Division of Water Resources under the Water Resources Commission. Chapter 706 of the Acts of 1975 placed the Division within and under the jurisdiction of the Department of Environmental Management as well as the Water Resources Commission. Chapter 589 of 1983, completely revised Chapter 21, Sections 8 through 16 placing the Division exclusively under the supervision and control of the Commissioner of the Department and transferred most of the duties formerly assigned to the Water Resources Commission to the Division of Water Resources.

Division's New Water Resources Planning Responsibilities

The sections of the Coastal Zone Management Act reorganizing the Water Resources Commission and the Interbasin Transfer Act gave the Water Resources Commission a number of important duties to include coordinating EOEA's water resources planning efforts, continuation of the preparation of river basin plans, and reviewing proposed interbasin transfers. In March, 1984, James S. Hoyte, Secretary of the Executive Office of Environmental Affairs and Chairman of the Water Resources Commission, designated the Division of Water Resources to provide the necessary staff support for the Water Resources Commission to administer these Acts.

Division's Main Long Range Goals

I. Collect, refine and update basic water resources data for dissemination to state, federal and local agencies and the general public.

II. Plan, implement and maintain works of improvement to prevent loss of life and damage to property from erosion, floodwater and sediment in the watersheds of the rivers and streams of the Commonwealth.

III. Facilitate the development of a statewide comprehensive water resources management plan for Massachusetts, formulated from river basin plans being developed from local, regional and state assessments of water needs and resources in conformance with the Massachusetts Water Policy Statement.

PERSONNEL OF THE DIVISION (as of June 30, 1985)

Kennedy, Charles F.	Director & Chief Engineer
Pyle, O. Fletcher	Associate Civil Engineer
Beshara, Michael L.	Associate Civil Engineer
Maguire, Kevin B.	Senior Civil Engineer
vacant	Senior Civil Engineer
Thibedeau, Richard H.	Chief Planner
Phippen, Peter D.	Principal Planner
Bones, William F., Jr.	Principal Planner
Asen, Steve	Resources Planner
Siegfriedt, Faye N.	Resources Planner
Graham, Deborah	Resources Planner
Shapiro, Sheldon	Supervising Environmentalist
Brown, David	Senior Marine Fisheries Biologist
McLaughlin, Joan	Senior Planner
Haberlin, Doris	Administrative Assistant
Tanzer, Philip	Senior Statistical Clerk
DiBattista, Cheryl	Senior Clerk Stenographer
Russo, Roseann	Junior Clerk Typist

FY85 Programs within the Division of Water Resources

BASIC DATA

A. Water Resources Data Interchange

One of the more important services of the Division of Water Resources is the dissemination of basic water resources data and other information to professionals, other resource planning agencies and the general public. The Division responds in a timely manner to the continous requests for information.

B. Basic Data Acquisition

1. Basic Data Gathering includes the recording of precipitation, stream gauging, snow surveys, reservoir elevations and flood monitoring. This information is necessary for detailed water supply and flood control planning. The Division operates a system of 199 rainfall stations. Statistical records are maintained on general weather conditions such as the rainfall records in the appendix of this report for calendar year 1984. This service is valuable to engineers, students, architects, climatologists and the legal profession. The Division also maintains logs of water wells drilled throughout the state pursuant to the requirements of M.G.L. Chapter 21, Section 16.

2. Water Use Data Program

   Efforts this year focused on preparing data for input into the U.S. Geological Survey (USGS) data base State Water Use Data System (SWUDS) through a Division of Water Resources/USGS cooperative program to automate basic water resources data. The final report "Collection and Analysis of Public Water Supply Use Data for Massachusetts", which was prepared by Boston University and funded through a U.S.G.S. grant, completes an important phase of the program. In meeting the terms of the grant, several tasks were completed to transform the community water resources data, stored in file folders, into an automated information system. A cross-reference system was developed to match data from the State and U.S.G.S. In addition coding forms and a computer entry program were designed to enable the data to be entered quickly and easily. Of the 1005 active community water supply wells listed in DWR records, 880 have been accurately located and entered into the data base. Altogether, twenty-four data points of information for each water supply system have been automated. The system is designed to be of maximum utility to other water agencies and to DWR river basin planning.

C. Regional Resource Evaluations: The following are current studies or programs:

1. Water Resources and Priorities Study (cooperative with Soil Conservation Service)

   Designed to expand information which supports the Early Acquisition of Reservoir Sites Program (Chapter 767, Acts of 1970), this study is evaluating and prioritizing the prime reservoir sites in the State's 27 river basins which were originally identified in the Massachusetts Water Resources Study completed in 1978. Using a screening process the sites were reduced to 50±. Field work was completed on these and work has been focused on the preparation of draft site reports. Seventeen (17) were completed during this fiscal year. Assistance was received from the Division of Water Supply (DEQE) to review the appropriateness of the sites used for water supply. The study is 85 percent complete. A Division of Water Resources staff member attended work group meetings, coordinat work tasks and provided water resources data.

FORESTS & PARKS
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2. "Atlas Program" - (Groundwater Studies)

This cooperative USGS/Division of Water Resources program inventories and assesses the quantity and quality of ground and surface water resources in river basins. The following work tasks were undertaken during the last year:

a) The Sudbury/Assabet/Concord river basin report was printed and distributed

b) Review of the Chicopee Atlas was completed at U.S. Geological Survey Headquarters in Reston, Virginia and shipped to Arizona for printing. It should be distributed during calendar year 1986.

c) The U.S.G.S. Headquarters review of the French - Quinebaug Atlas Report was completed.

d) The Blackstone River Basin Atlas was delivered to the printers and copies should be available in calendar year 1986.

3. Stream Gaging Program (cooperative with U.S. Geological Survey)

Streamflow data was collected for the 78 gaging stations operated in 1985. The 1984 water year surface-water data analysis was completed on these stations.

4. Chapter 800 Cooperative Groundwater Survey Program

This cooperative U.S. Geological Survey/Division of Water Resources program provides baseline data on major aquifers of each river basin in the Commonwealth. These comprehensive assessments identify areal extent, depth, hydrologic characteristics, the quality and quantity of water, and the effects of water use alternatives. Seven studies were in process during FY 1985 under the Chapter 800 program: the Charles River Basin Study was finished in May 1985. The Taunton River Basin Study will be completed in FY 86. The third year of the four year Plymouth/Carver Study was completed, and the second year of the Nashua River Basin and North River Basin Studies was finished. First year starts were made on Chapter 800 studies in the Blackstone and Neponset River Basins.

D. Early Acquisition of Reservoir Sites Program

The Division, pursuant to Chapter 21, Section 9A, M.G.L., is authorized by the State Legislature to acquire land, water or easements to protect future water resource values and conserve impoundment sites for the purpose of flood control, low flow augmentation and/or municipal water supply. Approximately 107 acres were acquired to enable the Abington and Rockland Joint Water Workds to expand the Hingham Street Reservoir. This water supply source serves Abington, Rockland and sections of Hanson, Pembroke, Norwell and Hingham. The Division is evaluating the costs associated with the acquisition of a site in Kingston for a new water supply reservoir for the City of Brockton. The Water Resources Commission is in the final stages of evaluating a reservoir site acquisition in Middleton to serve both Danvers and Middleton.

E. Metropolitan District Commission Long Range Water Supply Study

This comprehensive study was initiated by the Metropolitan District Commission to evaluate the alternative solutions to meeting the water supply needs of the Metropolitan Boston area. The study encompasses the water use, demand and supply alternatives for the 45 communities presently served by th MDC and for 12 possible future user communities. The demand management alternative has been adopted by the Metropolitan District Commission and the MDC has begun to implement the provisions of this alternative.

The Division of Water Resources participated in this study by:

1. Developing the basic water resources data on local safe yields used in this study.
2. Reviewing drafts of the material produced.
3. Attendance at several public meetings held during the course of the year

II. FLOOD CONTROL

A. Watershed Protection and Flood Prevention Act (P.L. 566) Program. (a cooperat program with the U.S. Department of Agriculture)

1. Operational Watersheds

Vandalism is a continuing problem at many flood control impoundment si On the Cold Harbor Brook Site in Northboro in the SuAsCo Watershed Project terrain vehicles are causing damage and the neighbors have complained to the State Representatives. More maintenance funds are being spent in an attempt to limit access to the site.

The 1000 acre site in New Marlborough on the Blackberry River Watershed a problem since hunters trespass on adjoining private property to gain access to State Forest lands via our flood control site. Acquiring additional property in the area to provide greater access to sportsmen is one possible solution.

a) Clam River - Berkshire County

All structures are complete except the Clam Lake site, where a solution to an erosion problem with a portion of the embankment is being pursued. Structural corrections have to be made to the riser which controls the water level of the lake.

b) Washington Mountain Brook - Berkshire County

The October Mountain Lake Project has been completed and accepted from the Contractor.

The Washington Mountain Lake investigation is underway. When the sample borings have been completed and the results evaluated a decision will be made as to how to correct the seepage problem.

Preliminary plans have been reviewed for the School House Lake Project.

c) Baiting Brook - Middlesex County

The Contract has been executed and construction has begun on the project.

d) Diamond Brook - Norfolk County

The channel improvement project is completed.

2. Flood Plain Management Studies

These joint DWR/U.S. Soil Conservation Service (SCS) studies authorized by Section 6 of Public Law 83-566 provide needed information to communities where flood damages are a serious concern and local government wants to take action to reduce these damages. Thus, these studies are site specific and of a problem solving nature.

The Division of Water Resources is the coordinating agency for the SCS Flood Plain Management Program. It receives FPMS applications from the communities, provides data used in conducting the studies and coordinates agency review of draft reports. Program accomplishments during Fiscal Year 1985 were as follows:

a) A study was completed for Cobb Brook Watershed in the City of Taunton that outlined alternatives designed to prevent flooding in an industrial park area south of Route #138. Based on this report, the City has embarked on a program to replace inadequate culverts with new ones that will pass the 100-year flood flow without overtopping roadways.

b) A draft F.P.M.S. report was prepared for Salisbury Brook in the City of Brockton. It is being reviewed by the City. Suggestions will be incorporated into a floodplain management plan (draft) to guide local actions which will emphasize non-structural flood control measures including management practices for existing reservoirs.

c) A flood plain management study (FPMS) was requested by the Towns of Southwick, Mass. and Suffield, Conn. through their joint organization; the "Congamond Lakes Restoration Committee." A plan of work (POW) was developed for a study that provides information about the frequent flooding of lakeshore homes coupled with the need for better water level management. To get started, SCS has made field surveys to analyse flooding problems. Hydraulic and hydrologic studies are in progress that apply computer models to set out management alternatives that reduce flood damages. SCS coordinates with other agencies such as the Division of Waterways (DEM) who is currently completing a channel improvement project on the Great Brook outlet of Middle Congamond Lake to facilitate flow from the lake and provide storage capacity during storm events.

B. Federal Emergency Management Agency Program

1. National Flood Insurance Program

Of the participating communities in the Commonwealth, 287 are in the Regular Program and 38 in the Emergency Program. Three (3) communities are suspended from the program for their failure to adopt required land use measures.

2. Flood Hazard Management Project (FHMP)

The Flood Hazard Management Project (FHMP) was established within the Division of Water Resources in 1981. The FHMP, funded by the Federal Emergency Management Agency (FEMA) through the State Assistance Program (SAP), continued to promote flood hazard mitigation practices within the Commonwealth during FY 84.

Funding cuts, coinciding with Federal FY 85, reduced FHMP staff to two SAP federal positions and one state position provided as the state's share of the funding. Funding cuts have occurred every year since 1981 as part of a FEMA policy designed to encourage individual states to assume the costs of the program, thereby taking over the responsibility of their own flood hazard mitigation problems. Federal funding for only one position will be continued in FY 86. A 25% State match is required.

The following accomplishments were made during this fiscal year:

a) Forty Community Assistance and Program Evaluation meetings were held throughout the State to assist communities in implementing the requirements of the NFIP, Massachusetts Building Code and wetlands protection laws.

b) The Statewide Clearinghouse for Flood Hazard Information received over 840 requests for information and distributed 3000 pieces of literature.

c) The Acquisition Program continued in coastal communities and expanded to include inland communities. Assistance was offered to communities that wished to apply for public money for purchasing floodprone areas for the purpose of conservation and recreation. A total of eleven towns have benefitted from this service.

d) Floodplain management workshops were held for the benefit of local public health officers on Cape Cod and for the general public in Leicester. A loca assistance workshop was held for town officials in Wellfleet.

e) Technical assistance in floodplain management was provided to seven communit in western Massachusetts that were scheduled for early conversion to the regular phase of the National Flood Insurance Program.

II. WATER RESOURCES PLANNING

A. River Basin Planning Program

The Water Resources Management Planning Regulations 313 CMR 2.00 were adopted by the Massachusetts Water Resources Commission in 1979 to establish a framework for the developement of plans for the river basins of Massachusetts and a state-wide water resource management plan. The basic purpose of these regulations is to facilitate the development of comprehensive water resources management plans for Massachusetts. These plans are being based on local, regional and state assessments of water needs and resources to be in conformance with the Massachusetts Water Suppl Policy Statement and to be developed from adequate data aggregated by river basins.

The development of a river basin plan involves five steps: 1) inventory the basin's water resources, demand and uses, 2) analyze data and identify projected water needs, 3) develop alternatives, 4) prepare water resources management plan, and 5) adopt the plan.

The inventory stage is being carried out in a layer approach with each inventory component being collected simultaneously for all the river basins in the State. This allows statewide assessments to be prepared as each inventory component is developed and baseline data base to be established ensuring consistency of information among a wide variety of programs and projects at the local, regional and state level.

Planning efforts during this fiscal year focused on making significant progress in stage 1 the inventory of 27 river basin's water resources, demand and uses and initiating work on stage 2 of the planning process.

Accomplishments during the reporting period included:

1. Community Water Resources Data

The Division continued its ongoing responsibility of updating and analyzing the community water resources data. This detailed information is being used as the foundation for developing the 27 river basin plans, to help target many of the State's water resources local grant programs and to prepare long range water demand projections.

2. Disaggregate Data by River Basins

The basic water resource data was assembled by basin and the following reports were produced:

a) "Blackstone River Basin -- Inventory and Analysis of Current and Projected Water Use"

b) "Directory of State, Federal and Regional Water Planning And Management Agencies"

c) "Massachusetts Public Water Supply Systems Annual Average Day Demand 1980-1984"

3. River Basin Map

A page size, 11" x 17" and a wall display size map of the river basins of the Commonwealth as approved by the Water Resources Commission were drafted and printed.

4. Ipswich River Basin

Work continued on reactivating and updating the hydrologic simulation computer model for the Ipswich River. This effort included field visits to the local water supply agencies to refine data on water supply sources, initial preparation of an inventory and analysis of current and projected water use in the Ipswich Study Area and updating the water resources data in the computer model.

5. Charles River Basin

Field research was completed to collect community water resources data to prepare an inventory and analysis of current and projected water use in the Charles River Basin.

B. State Land Management Planning

To assist in the development of the Guidelines for Operation and Land Stewardship (G.O.A.L.S.) plans for the State's Forests and Parks, the public water supply sources located in the same sub-watershed and in close proximity to one of the Department's land holdings were identified and located in topographic maps. This analysis indicated that 95 or approximately 10% of the public water sources in the state fell in this category.

C. Merrimack River Needs and Management Study

The Division administered a legislative grant to the Merrimack River Watershed Council to conduct a study of the demands and needs for the waters of the Merrimack River.

D. Interbasin Transfer Act

As part of its new responsibility of providing staff support to the Water Resour Commission, considerable time and effort was devoted by Division staff to assisting the Commission develop regulations to implement the Interbasin Transfer Act. Divisio assistance in the regulations development process included background research, draft sections of the regulations, preparing summaries and explanatory material, presentatio at the hearings and preparing a summary of the hearing comments. The regulations define and delineate the river basins of the Commonwealth and establish application procedures and criteria upon which the Water Resources Commission shall base its approval or disapproval of any proposed interbasin transfer of water. They were adopted by the Commission in April, 1985.

E. Water Resources Planning Task Force

The Water Resources Commission established a Water Resources Planning Task Force to assist the Commission to coordinate water resources planning among the agencies and departments in the Executive Office of Environmental Affairs. The task force is the primary mechanism to implement Chapter 21A, Section 8B (b) which establishes the planning coordinating function of the Commission as reorganized by the Acts of 198. The task force also served as an advisory committee to the Commission this year to assist it in developing regulations and criteria to implement the new Interbasin Transfer Act. The task force is chaired by the Division's Chief Planner.

The task force consists of as core members, a representative of the principal state water planning and management agencies, and as contributing agencies and associations, representatives of other organizations involved in water resources planning issues in Massachusetts.

F. Water Supply Task Force

In 1983, the Water Resources Commission established an in-house Task Force to review and update the Massachusetts Water Supply Policy Statement. The Task Force considered current state agency operational water supply procedures, new information on water supply issues, and practical experiences of local and state governments.

A draft update was developed by the Task Force and approved in concept, by the Water Resources Commission in January, 1984. Agency and public review of the draft occurred during the spring with final adoption by the Commission in August, 1984 of "The Updated Massachusetts Water Supply Policy Statement".

At that time the Commission requested that this Task Force continue its efforts by drafting policies for private water supplies. The Task Force, comprised of representatives from the five departments within the Executive Office of Environmental Affairs, the Department of Public Health, and the Department of Public Works met monthly through the year and developed a draft which was approved for public review in June, 1985.

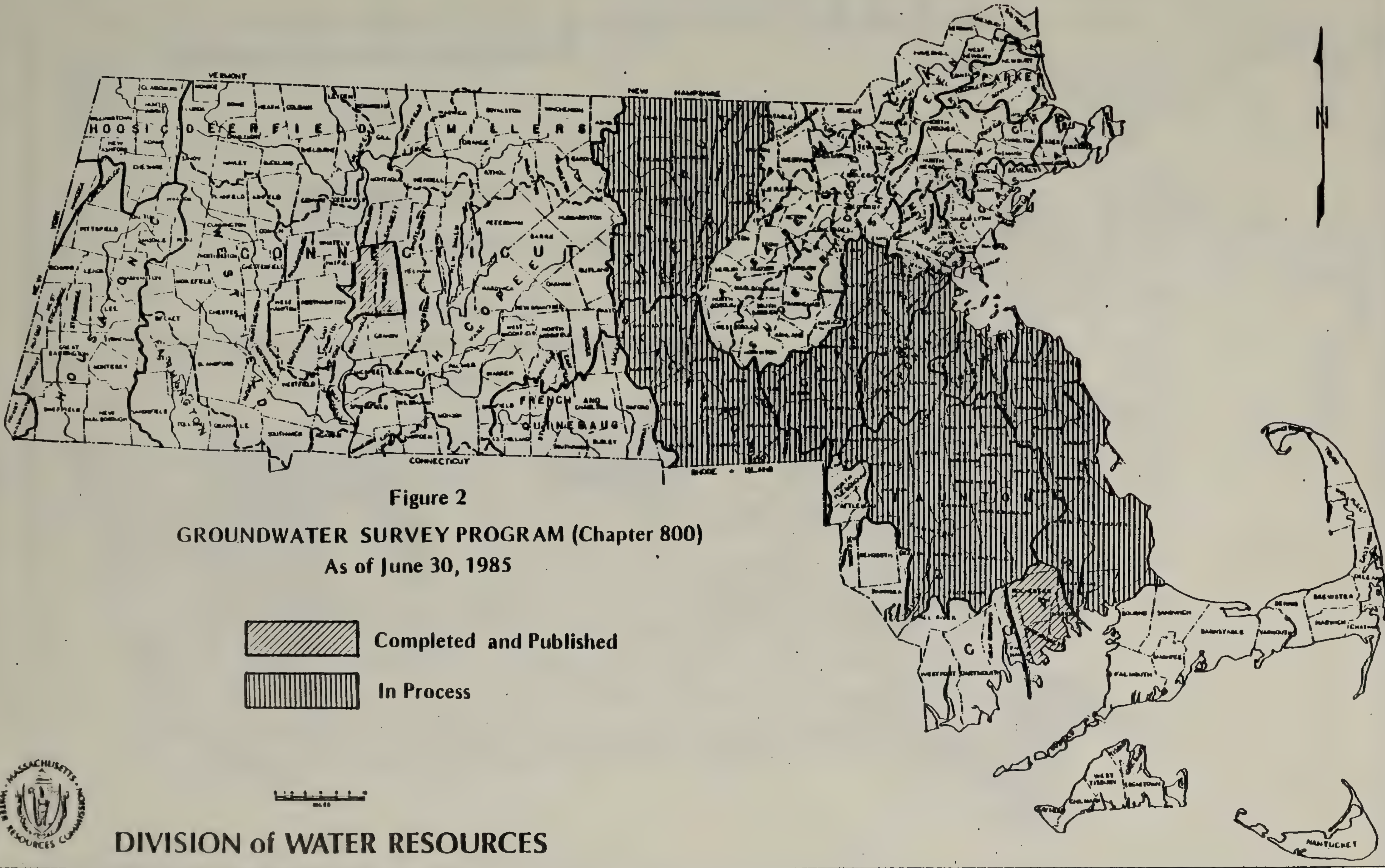

Figure 2

GROUNDWATER SURVEY PROGRAM (Chapter 800)

As of June 30, 1985

▨ Completed and Published

▥ In Process

DIVISION of WATER RESOURCES

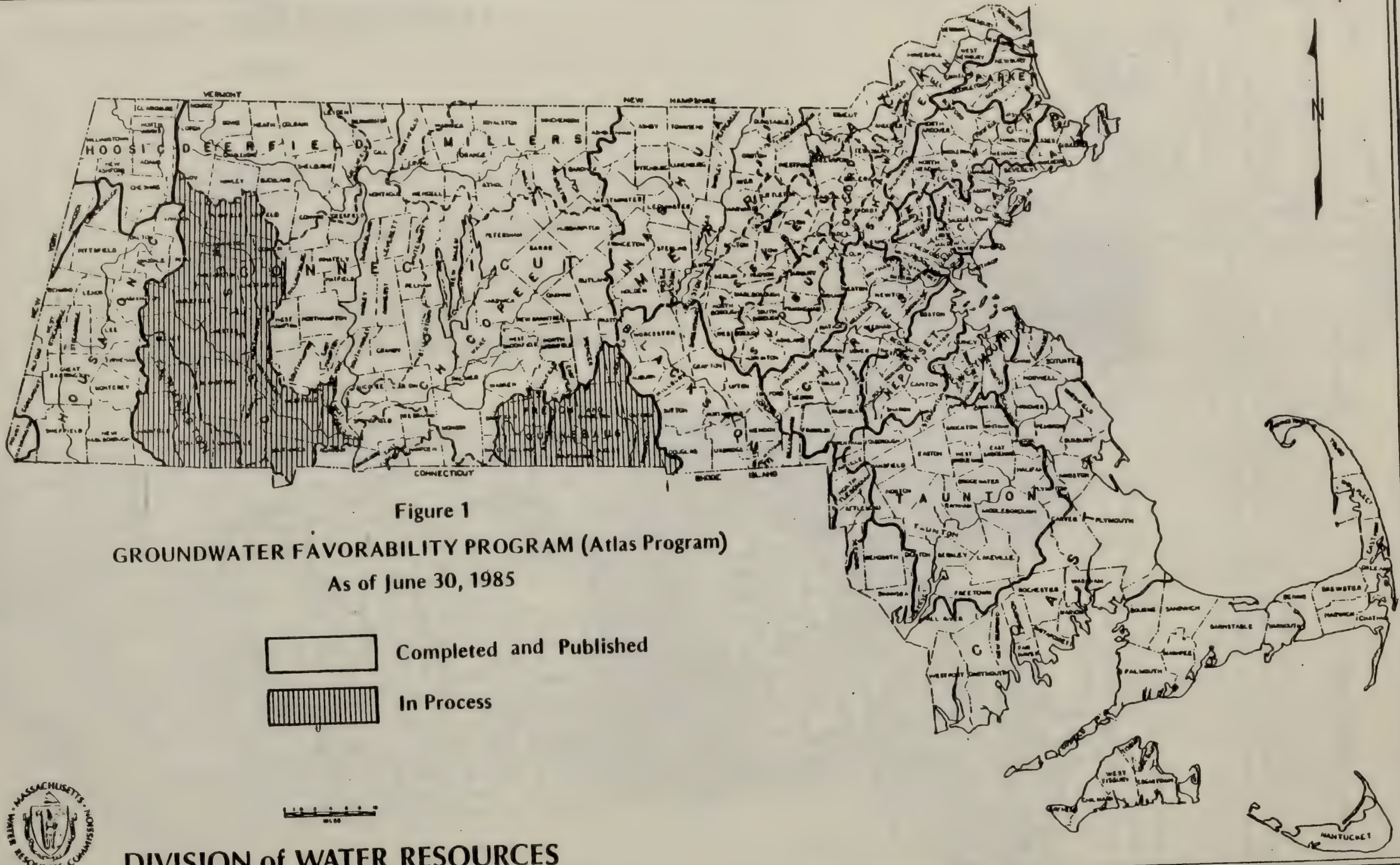

Figure 1

GROUNDWATER FAVORABILITY PROGRAM (Atlas Program)

As of June 30, 1985

☐ Completed and Published

▥ In Process

DIVISION of WATER RESOURCES

MASSACHUSETTS PRECIPITATION 1984
(inches)

	State	Northeast Section	Southeast Section	Central Section	Conn. River Section	Western Section
January	2.55	2.52	2.60	2.57	2.06	2.26
February	6.70	7.52	5.36	6.20	6.52	5.79
March	5.53	6.49	6.10	5.68	4.88	4.67
April	4.77	4.07	4.52	4.39	4.80	5.14
May	9.34	8.42	4.53	8.79	12.95	12.95
June	4.38	3.84	5.94	2.64	2.78	2.56
July	5.24	4.76	5.21	4.92	5.49	4.98
August	1.41	1.00	0.69	1.23	1.62	2.47
September	1.47	1.09	1.94	1.56	1.49	1.96
October	3.48	3.65	4.13	3.96	3.12	2.47
November	3.07	2.60	1.64	3.01	3.71	3.37
December	3.15	3.18	3.35	3.03	3.08	2.64
Year	51.09	49.14	46.01	47.98	52.50	51.26
Normal	44.46	42.66	44.83	44.73	44.97	45.08

MASSACHUSETTS PRECIPITATION 1984
DEVIATION FROM NORMAL
(inches)

	State	Northeast Section	Southeast Section	Central Section	Conn. River Section	Western Section
January	-1.14	-1.16	-1.39	-1.26	-1.37	-0.99
February	+3.31	+4.13	+1.72	+2.70	+3.34	+2.85
March	+1.65	+2.69	+1.90	+1.61	+1.23	+1.28
April	+1.07	+0.45	+0.50	+0.62	+1.12	+1.36
May	+5.64	+5.11	+1.13	+5.30	+8.95	+9.01
June	+0.79	+0.46	+2.62	-1.07	-1.21	-1.64
July	+1.56	+1.31	+2.26	+1.41	+1.37	+0.64
August	-2.51	-2.62	-3.37	-2.45	-2.43	-1.81
September	-2.11	-2.42	-1.71	-2.19	-2.26	-2.16
October	-0.07	+0.35	+0.53	+0.56	-0.38	-0.95
November	-0.88	-1.32	-2.22	-1.07	-0.23	-0.44
December	-0.68	-0.50	-0.79	-0.91	-0.60	-0.97
Total Excess or Deficiency for Year 1984	+6.63	+6.48	+1.18	+3.25	+7.53	+6.18

FORESTS & PARKS

PLANNING &
DEVELOPMENT

WATER RESOURCES

WATERWAYS

MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ANNUAL REPORT

FISCAL YEAR

1986

GOVERNMENT DOCUMENTS COLLECTION
AUG 13 1987
University of Massachusetts
Depository Copy

JAMES GUTENSOHN
COMMISSIONER

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Charles Kennedy, Director

DIVISION OF WATERWAYS

John J. Hannon, Director

FORESTS & PARKS

PLANNING &
DEVELOPMENT

WATER RESOURCES

WATERWAYS

ANNUAL REPORT
FY1986
BUREAU OF RECREATION
CHARLES H. DANE, CHIEF

This fiscal year the Bureau of Recreation provided 11,740,128 people with an enjoyable relaxing experience. This was a decrease of about 90,000 people from the previous year but income increased by 484 thousand dollars

Generally speaking camping attendance and income decreased while day use increased. Rink income was down, while ocean beach income increased slightly, pools showed improved use and park day use increased appreciably.

UNIFORM STANDARDS

In a continuing effort to assist with employee recognition by recreation area visitors standards are being met. The purchase of uniform clothing and distribution of same has taken place. Graphic Illustrations in oil painting form have been viewed by all Regions in an attempt to solidify this effort. To further insure that standards be met color photos of these paintings are being processed for distribution to all facility staff.

TRAILS

During the 1985-86 winter season, the Forest and Parks staff was asked to complete trail inventory forms for all trails within our system. Upon review of these forms the idea that trail maintenance, accurate marking and detailed maps were lacking, was reinforced. To begin to rectify these problems in June of 1986 a seasonal cartographic technician was hired to produce a new format for trail maps and expand on the existing information. Regional and Park staff were consulted for information prior to any updates or printing. During the first quarter of FY87 these maps should begin to show up in the field offices.

Many new projects were initiated through the work of the Statewide trails committee and its constituants. An Adopt-a-Trail program to begin in September of FY87 will invite any individual or group of people to adopt a section or entire length of trail for maintenance purposes in return for recognition, a chance to learn new skills, and to gain personal satisfaction.

A pilot program to contract out to non-profit organization, DEM trail maintenance tasks, has begun. Through this project knowledge will be gained as to what types of tasks groups of these sorts should be contracted to do when DEM staffing is unavailable. *See appendix for brochure.

Trail marking is a topic of great concern. Considering that this division has over 3800 miles of trails of varying type, and that even though policy for marking these trails has been in place for many years, we are still not consistant in implimenting this policy. To help rectify this problem a modified trail marking system has been developed. Colored arrows will still be used as per CMR 1502 but instead of displaying these continually along the

trail, they will only be used at trail heads (along with signage) and at intersections and areas of confusion. These arrows will be made of a sturdy plastic type material and the majority of them will be prestenciled with the universal trail symbols (hikers, snowmobile, horse riders, etc.). Along the trail between these arrows will be enough paint blazes to reinforce the trails direction to the user. This should make maintenance of signage much less difficult for the staff maintaining these lengths of trails.

ADOPT-A-TRAIL

Appalachian Mountain Club

ADOPT-A-TRAIL REGISTRATION FORM

NAME

ADDRESS

TELEPHONE H W

D.E.M. FOREST PARK TRAIL THAT YOU WOULD LIKE TO WORK WITH (IF ANY)

PLEASE INDICATE INTERESTS TRAIL ADOPTION ☐ LIGHT MAINTENANCE ☐
GROUP RECONSTRUCTION PROJECTS ☐

EXPERIENCE IN TRAIL WORK (IF ANY)

Importance of Trails

Well maintained trails are a vital component of outdoor recreation. They provide access to remote, natural areas and allow a variety of trail users the opportunity to enjoy outdoor activities. Massachusetts has several thousands miles of trails. Many of these trails are in the state forests and parks. Others form a network of long distance trails linking parks with other public open space.

Trails need to be maintained

Trails need to be maintained or they will disappear. The effects of winter storms often leave trails blocked by fallen trees or debris and spring growth obscures the path. In addition, signs fade, thoughtless visitors leave trash and untidy campsites, and heavy rains erode steep mountain slopes and cause mud holes in low areas.

The Program

The Adopt-A-Trail program will keep trails in good repair by linking various trail users with trails that need proper care and maintenance. Individuals, families, and organizations may adopt either an entire trail or a section of a trail. Supervision and tools will be provided by D.E.M and volunteers who adopt a trail will be able to work on their own schedule.

In addition, several one day orientation and training sessions will be held by program coordinators during the fall months, and certificates will be awarded for successful completion.

Who can adopt a trail

Trails need volunteers who enjoy and appreciate the outdoors, to help maintain existing trails, and to construct new trail opportunities. Much of the maintenance work will require physical labor for such projects as brush clearing and bridge building. Other maintenance responsibilities will require volunteers to regularly patrol and clear the trails. It is a wonderful opportunity for individuals, families or organizations to work together and learn many skills.

Responsibilities of Volunteers

Volunteers who adopt a trail will work on projects such as pruning, renewing blazes and signs, patrolling the area, and reporting back on the status of trails. Larger projects that require major work will be coordinated with the D.E.M.

How to become involved

To become involved in this new program simply complete the attached registration form. Open up new paths for yourself and others and get involved in Adopt-A-Trail.

Department of
Environmental Management
Division of Forest and Parks
100 Cambridge Street
Boston, MA 02202

Department of Environmental Management
Division of Forests and Parks
100 Cambridge Street
Boston, MA 02202

STAMP

Department of Environmental Management
Division of Forests and Parks
100 Cambridge Street
Boston, MA 02202

Attn: Todd Lafleur

PLANNING &
DEVELOPMENT
WATER RESOURCES
WATERWAYS

CELEBRATE THE STATE FORESTS AND PARKS

The week of June 21 thru 27th was celebrated this year in the Forest and Parks in a very special way!

Initiated on June 19 by Gov. Dukakis' written proclamation, this week was designated as "Massachusetts Forests and Parks Week". Secretary Hoyte along with Commissioner Gutensohn and Director Bliss on Sat. June 21 cut a ribbon at Walden Pond symbolizing the opening of the parks and publicizing the free admission day (June 21) at all Forests and Parks and the week long celebration to come.

Working from East to West the planned events ran Monday thru Friday, one in each region. Demerest Lloyd in S. Dartmouth kicked off the week with sand castle building, nature walks, rock painting and a barbershop quartet. At Cochituate State Park on Tuesday June 24th, Mother Nature was not very cooperative. Soon after the visitors crowded around Regional Supervisor Don Stoddard for opening remarks and the Folk music of Mark DelGreco floated through the pines, the heavens opened up with a roar of thunder. People scurried to vehicles, equipment was packed up and the event was called off. Though rain dampened this event, plans are already under way to make the 1987 celebration in Region II a great success. On Wednesday, Rutland State Park hosted visitors to music by the "Music Makers", a scavenger hunt, Sounds of Folk songs and exhibits by many Division bureaus. Thursday at Robinson State Park in Agawam proved to be a great day. The "trees are terrific" puppet show and Dixieland music entertained all, and the fishing derby produced dinner for many participants. The last celebration for 1986 was on Friday at Clarksburg State Forest. Oldies but Goodies music, family nature walks, and face painting were but a few of

the day long events. A community campfire and sing-a-long ended the day and Forests and Parks week for 1986.

The presence of "Smokey", the Park Rangers, and the working exhibits of I.P.C. and Forestry practices were major hits. The living and natural history walks given by Urban Heritage and Interpretive Services staff were also well received. All bureaus and the Office of Communications dedicated a great deal of time and effort to coordinate these events.

Many thanks go out to all persons involved in the planning and execution of Massachusetts Forests and Parks Week and Congratulations for a job well done.

COMPUTORIZATION

The Division of Forest and Parks took a tentative step into the 20th century record keeping process with the purchase of 6 IBM personnel computors this year.

This will effect a standardized record of information between the five regions and Boston. All machines are on line and capable of interchange of information.

Full utilization should be achieved in FY87.

SEASONAL HIRING

Hiring of fully qualified lifeguards continued to be a problem in Regions 5 and to a lesser degree in Region 2 this year. Continued efforts to improve recruitment and to offer training and testing are begining to show results. These efforts coupled with dropping the age requirement from 18 to 17 should place us in the position of filling all lifeguard positions in the coming years.

The program of setting aside selected seasonal conservation helper position for college students majoring in recreational forestry, law enforcement, or other environmental sciences was continued this year as it has for many years. This program gives students practical on the job experience related to their course of education. In return it gives the bureau highly trainable seasonal employees who upon graduation form a pool of potentially highly qualified individuals interested in year round employment with us.

John Grant to provide details on positions, locations and schools.

HANDICAPPED ACCESS:

A great ~~concern~~ problem which has not been addressed sufficiently in our facilities for far too long is now a priority concern within the Division. Many of our facilities were designed and constructed prior to requirements for handicapped access being established and many more when standards were relatively low.

Working with organizations such as the Independent Living Associates, Starvos Inc, and the State Department of Handicapped Affairs and the State Architectural Barriers Board we have begun to update facilities to meet current standards.

This year we furnished selected campsites at 7 campgrounds statewide with special picnic tables and grills, revamped plumbing, provided ramping, etc. to make a camping experience more available to the handicapped. Similiar work was done in two picnic areas and continued efforts are planned for FY87.

A booklet listing all facilities and accessibility information is in the planning stages with hopes of publication in early FY88. This information would then be made available to all individuals and organizations to use so that they, knowing the capabilities of the group or themselves, could choose a park appropriate to their wants and needs.

Though a great deal of time and money will be needed to update all Division Facilities, each step in the proper direction gets us closer to the overall goal.

Zamboni Ice Resurfacing Machines

As the 22 ice resurfacers age the maintenance costs soar. Some of our machines 18 years old and are still operable as backup machines. Our youngest machine l2 years. Realizing that additional demands were coming about an 03 Contract executed and a zamboni maintenance specialist brought on board (our former dor). This complex piece of equipment requires complete knowledge of Hydraulics ine Repair ice cutting equipment etc. Savings into the thousands of dollars have n realized by this action in parts replacement alone. Additional costs have n reduced in travel & overtime.

A plan for replacement for the older equipment is underway, but a replacement t of 45,000 per unit requires this complete preventive maintenance program in er to make for an orderly process.

SIGNAGE

During the fall of 1985 the Massachusetts Department of Public Works produced a New Sign Policy for the State Roadways. This policy opened the doors to many public and private agencies who in the past could not obtain signage on such road.

The Divisions five sign coordinators applied to the DPW for signage to direct users to State Forests, Parks, Rinks, Pools and Heritage Parks. During the spring of 1986 signs started appearing on some roadways.

The DEM lead in signs for town roads have been redesigned and are in the process of being printed. These should start to be erected in the first quarter of FY87 with hope that all will be up and ready for the FY87 summer recreation season.

MACO

The Massachusetts Association of Campground Owners, which represent private campground owners, and the Mass. Division of Forests and Parks, representing the public sector, have been working closely this year to better the relationship between the two agencies through a higher level of communication and cooperation.

Forests and Parks has been helping to advertise these private campgrounds, by making available to our Visitors, the MACO brochure. When DEM's camping facilities are full or when asked for information, division staff direct visitors to local private camping areas.

The administration of MACO has expressed it's appreciation for the cooperation shown by the Division of Forest and Parks.

The two agencies hope to produce in 1987, a "Camping in Massachusetts" guide which would solidify the relationship and most importantly aid the visitors and residents of Massachusetts with a compact, concise booklet of all Massachusetts campgrounds.

POLICE COVERAGE

In past years all hiring of overtime police officers for the Forest & Parks has been handled by the Boston Office. This year upon request by the Regional Offices the hiring for the summer of 1986 was done by these five offices. This change has generally worked out well for all involved and has created closer relationships between the different Police Agencies and the Regional Offices & Park Staffs.

ROLLOVER FUND

In previous years the Bureau was allowed to retain all admission fees collected above 5 million dollars and use these funds for improvements to recreational programs. Last year this amounted to $700,473.

This year the method of calculation has been revised so that we may retain 10% of all revenues collected. This change in calculations did not distabilize the fund which has proved extremely beneficial for operation of our facilities and enjoyment by the public. There was a small increase to $738,816.

1986 CAMPING SURVEY RESULTS

The following lists the results from the Camper Survey given during the summer of 1986. The overall percentages are listed out next to the questions on the survey form.

One hundred surveys were given to 27 of the camping areas managed by this Division. Half of the surveys were to be given out on weekdays, the other half on weekends.

Two thousand seven hundred forms were passed out and we had a 30.3% return rate. Each question was given a one point value. In some instances more than one answer was given to a question.

This survey has given the Division insight into some very important management issues as well as making us aware of exactly what the public wants from their State Camping areas.

CAMPGROUND NAME STATEWIDE

PLEASE FILL IN BLANKS OR CIRCLE ALL THAT APPLY:

1. Average age of party:

a) 20 and under 5.28%
b) 21-25 13.8%
c) 26-35 * 56.35%
d) 36-61 22.27%
e) 62+ 2.27%

2. How many miles are you from home (approx.) 100 miles or less - * 67.2%
more than 100 miles - 32.7%

3. Why did you choose this campground? (please circle all applicable items)

a) convenient * 27.18%
b) inexpensive 19.22%
c) atmosphere 23.67%
d) friends come here 12.77%
e) unique resource 18.04%
f) less crowded 9.21%

4. How did you hear about this facility?

a) friends * 36.59%
b) radio .89%
c) reading 30.04%
d) family 20.11%

5. Do you have one of the Forest and Park brochures? (black background)

a) yes 33.38%
b) no * 66.47%

6. How many other Massachusetts Forests/Parks have you visited (ever)?

a) 0 27.88%
b) 1-5 * 55.29%
c) 6+ 16.83%

7. Should Massachusetts charge a higher fee for out of state users of the park?

a) yes * 87.78%
b) no 12.67%

8. Should families/persons who are not camping in the park be allowed to visit people who are camping?

a) yes * 87.78%
b) no 12.67%

9. Should alcohol be allowed in a park if it is consumed at designated campsites and picnic areas only?

a) yes * 75.56%
b) no 23.88%

10. To obtain a campsite, would you; (please circle one)

a) like to keep the present first come - first serve system * 58.57%
b) like to be able to reserve any site in the park 27.42%
c) like to have ½ of all sites in park available by reservation. 13.56%

10a. If reservations were available, would you be willing to pay a $3.00 reservation fee in addition to the regular camping fee?

a) yes * 58.57%
b) no 37.11%

11. Are you a Massachusetts resident?

a) yes * 67.36%
b) no 31.28%

a) yes * 64.83% b) no 10.73%

If yes should they be taken when families leave the site for the day?

a) yes * 55.74% b) no 10.73%

How could this park be improved?

a) less expensive 4.47%
b) less crowded 4.48%
c) more activities 19.8%
d) more space between campsites 16.56%
e) less development 6.7%
f) new facilities * 29.36%
g) less rowdiness 7.82%
h) swimming 14.35%

Would you be willing to pay a higher camping fee if the funds went to improving this park?

a) yes * 80.17% b) no 15.2%

If yes, what would you want the funds to go towards;

a) building maintanance 20.56%
b) trail maintenance 12.14%
c) nature programs 11.57%
d) swimming facilities 13.03%
e) recreational facilities (playground, ballfield etc.) * 35.91%
f) other 3.21% various answers (hot showers, rec. building etc.)

Please rate each of the items listed below by comparing this campground with the average for other campgrounds that youhave visited.

Give us an A (for Excellent), B (Better than Average), C (Average), D (Poorer than Average), or an F (Poor).

1. _____ Your first impression
2. _____ Cleanliness of campsites
3. _____ Maintenance of campsites
4. _____ Cleanliness of restrooms
5. _____ Maintenance of restrooms
6. _____ Privacy of campsites
7. _____ Adequate size of campsites
8. _____ Adequate choice of campsites
9. _____ Availability of firewood
10. _____ Availability of groceries, etc.
11. _____ Availability of recreation
12. _____ Availability of information
13. _____ Ease of check-in (speed)
14. _____ Convenience of check-out time
15. _____ Safety and Security
16. _____ Attitude of employees
17. _____ Helpfulness of employees
18. _____ General attractiveness
19. _____ Campground worth revisting

* - highest percentage

*1 - Answers to this question are listed on the next page

RATINGS - A TO F GRADES

	A	B	C	D	F
1. First Impression	*46.8	33.4	12.6	1.2	1.8
2. Cleanliness of Sites	*43.3	21.5	13.4	4.2	2.9
3. Maintenence of Sites	*36.4	32.2	14.1	4.9	2.5
4. Cleanliness of Restrooms	20.8	*31.1	23.7	9.4	7.1
5. Maintenence of Restrooms	19.3	*33.6	23.9	10.9	8.1
6. Privacy of Sites	25.8	*35.1	23.3	5.7	2.3
7. Size of Sites	*38.1	31.5	22.1	2.7	.7
8. Choice of Sites	*31.4	31.0	21.9	6.7	4.0
9. Availability of Firewood	14.1	19.1	*29.7	13.1	13.8
10. Availability of Groceries	11.7	20.6	*31.2	13.4	13.6
11. Availability of Recreation	21.1	26.5	*32.5	9.2	4.2
12. Availability of Information	*35.2	28.2	21.5	6.0	3.7
13. Ease of Check In	*45.9	25.5	15.3	3.5	5.9
14. Convenience of Check Out	*48.5	25.8	15.9	2.0	1.0
15. Safety and Security	*43.1	30.4	15.6	2.0	1.5
16. Attitude of Employees	*62.4	23.8	8.1	2.2	.5
17. Helpfulness of Employees	*59.2	24.2	9.2	1.3	1.7
18. General Attractiveness	*47.3	34.7	12.6	2.2	.7
19. Campground Worth Revisiting	*60.1	25.0	9.1	.7	1.0

* - Highest Percentage

KHH/lew

COMPARING ANSWERS

1.a	Massachusetts Residents who would,	
	want reservations	9.2%
	not want reservations	*36.9%
	want ½ of the sites available for reservations	18.9%
b	Non - Massachusetts Residents who would;	
	want reservations	3.1%
	not want reservations	*16.5%
	want ½ of the sites available for reservations	9.1%
2.	If reservations were available, person would;	
	a. Pay a $3.00 reservation fee	*35.2%
	b. Not pay a $3.00 reservation fee	9.7%
	No answer	55.1%
3.a	A Massachusetts Resident who wants to charge out of state camping fee	26.6%
b	Massachusetts Resident who doesn't want an out of state camping fee	*40.1%
c	Non - Resident who want to be charged fee	2.9%
d	Non - Resident who doesn't want to be charged fee	24.6%
4.a	Persons with brochures that have visited other Forest and Parks facilities	*23.2%
b	Persons with brochure that have not visited other Forests and Parks facilities	7.6%
c	Persons without brochures that have visited other Forests and Parks facilities	45.2%
d	Persons without brochures that have not visited other Forest and Parks facilities	19.8%

1986 FISCAL YEAR
ATTENDANCE RECORD

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
AMES NOWELL	-	22,151	18,394	3,757	22,151
ASHLAND	-	28,388	24,435	3,953	28,388
BEARTOWN	4,515	26,421	24,410	2,011	30,936
BLACKSTONE	-	-	-	-	-
BORDERLAND	-	68,998	68,998	-	68,998
BOSTON HARBOR ISLANDS	2,650	69,369	69,369	-	72,019
°Commuter Parking	-	171,000	171,000	-	171,000
BRADLEY PALMER	-	64,803	55,375	9,428	64,803
BUFFUMVILLE	-	29,639	25,330	4,309	29,639
CALLAHAN, RAYMOND J.	-	13,480	13,480	-	13,480
CAMPBELL FALLS	-	1,341	1,341	-	1,341
CAPE COD RAIL TRAIL	-	114,058	114,058	-	114,058
CATAMOUNT	-	-	-	-	-
CHESTER - BLANFORD	220	5,586	5,381	205	5,806
CHICOPEE	-	83,208	37,342	45,866	83,208
CLARKSBURG	639	4,946	1,992	2,954	5,585
COCHITUATE	-	130,012	36,976	93,036	130,012
CONNECTICUT RIVER RAMP	-	-	-	-	-
CONWAY	-	-	-	-	-
COOKSON	-	2,180	2,180	-	2,180
D.A.R.	16,492	36,456	17,439	19,017	52,948
DEAN POND BRIMFIELD	1,649	15,854	7,644	8,210	17,503
DEMAREST LLOYD	-	53,323	14,430	38,893	53,323
DENNISON LAKE	38,799	83,758	65,103	18,655	122,557
DIGHTON ROCK	-	11,766	9,626	2,140	11,766

°not included in total figures - information only

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
DOUGLAS	-	84,561	44,994	39,567	84,561
DUBUQUE	-	17,970	17,970	-	17,970
EAST MOUNTAIN	-	-	-	-	-
ERVING	8,996	66,396	43,489	22,907	75,392
FED. WOMENS CLUB	1,530	12,327	12,327	-	13,857
F.G. HILLS	-	2,972	2,972	-	2,972
FREETOWN	-	24,100	16,906	7,194	24,100
GARDNER	-	9,702	4,880	4,822	9,702
GEORGETOWN-ROWLEY	-	-	-	-	-
GRANVILLE	4,877	9,369	5,421	3,948	14,246
GREAT BROOK FARM-CARLISLE	-	29,925	29,925	-	29,925
HALIBUT POINT	-	40,708	40,708	-	40,708
HAMPTON PONDS	-	49,204	16,273	32,931	49,204
HAROLD PARKER	34,216	49,424	38,523	10,901	83,640
HAWK'S NEST	-	-	-	-	-
H.O. COOK	-	-	-	-	-
HOLLAND POND	-	31,298	15,609	15,689	31,298
HOLYOKE RANGE	-	42,686	42,686	-	42,686
HOPKINTON	-	229,337	91,558	137,779	229,337
LEOMINSTER	-	49,675	24,780	24,895	49,675
LOWELL-DRACUT	-	20,455	20,455	-	20,455
LUDLOW	-	-	-	-	-
MARTHA'S VINEYARD	-	54,811	54,811	-	54,811
MASSASOIT	37,864	31,752	27,535	4,217	69,616
MOHAWK TRAIL	12,179	17,627	13,950	3,677	29,806

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
MONROE	-	-	-	-	
MOORE	-	9,054	9,054	-	9,054
MT. EVERETT	-	39,186	39,186	-	39,186
MT. GRACE	-	15,888	14,790	1,098	15,888
MT. GREYLOCK	5,557	112,332	111,643	689	117,889
MT. SUGARLOAF	-	82,107	82,107	-	82,107
MT. WASHINGTON	666	94,249	94,249	-	94,915
MYLES STANDISH	103,199	392,028	351,431	40,597	495,227
NANTUCKET	-	-	-	-	-
NATURAL BRIDGE	-	18,927	206	18,721	18,927
NICKERSON	120,672	46,242	46,242	-	166,914
NORTHFIELD	-	-	-	-	-
OCTOBER MT.	8,601	46,396	45,885	511	54,997
OTIS	-	-	-	-	-
OTTER RIVER	12,083	45,412	41,265	4,147	57,495
PEARL HILL	6,994	24,414	8,224	16,190	31,408
PERU	-	-	-	-	-
PETERSHAM	-	-	-	-	-
PITTSFIELD	5,770	69,657	64,436	5,221	75,427
PLUM ISLAND	-	60,569	60,569	-	60,569
PURGATORY CHASM	-	126,555	126,555	-	126,555
QUINSIGAMOND-REGATTA	-	288,225	271,763	16,462	288,225
QUINSIGAMOND-LAKE PARK	-	116,631	104,898	11,733	116,631
RED BRIDGE	-	-	-	-	-
RICH, J. HARRY	-	-	-	-	-
ROBINSON	-	22,694	10,154	12,540	22,694

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
RUTLAND	-	37,021	21,255	15,766	37,021
SANDISFIELD	-	10,660	3,214	7,446	10,660
SAVOY	7,175	15,849	13,852	1,997	23,024
SHAWME-CROWELL	55,463	8,121	7,254	867	63,584
SKINNER	-	102,195	102,195	-	102,195
SOUTH RIVER	-	-	-	-	-
SPENCER	-	15,306	8,226	7,080	15,306
STANDISH MONUMENT	-	22,715	22,715	-	22,715
STREETER	-	59,530	34,259	25,271	59,530
TACONIC FALLS	-	-	-	-	-
TOLLAND	25,724	68,524	50,303	18,221	94,248
TULLY RECREATION AREA	2,791	14,206	14,206	-	16,997
UPTON	-	13,824	13,824	-	13,824
WACHUSETT MOUNTAIN	-	162,888	162,888	-	162,888
* - SKI AREA	-	319,250	319,250	-	319,250
WAHCONAH FALLS	-	28,540	28,540	-	28,540
WALDEN POND	-	256,807	125,842	130,965	256,807
WARREN MANNING	-	2,382	1,772	610	2,382
WARWICK	-	-	-	-	-
WATSON	-	28,139	13,048	15,091	28,139
WEBB	-	73,110	73,110	-	73,110
WELLS	15,256	18,541	17,714	827	33,797
WENDELL	340	23,089	14,489	8,600	23,429
WEST LAKE	-	1,603	1,603	-	1,603
WHITEHALL	-	24,934	24,934	-	24,934

* Privately operated

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
WILLARD BROOK	6,900	43,322	16,289	27,033	50,222
WILLOWDALE	-	31,002	31,002	-	31,002
WINDSOR	3,870	24,718	14,384	10,334	28,588
WOMPATUCK	18,824	333,805	333,697	108	352,629
TOTAL	564,511	5,090,683	4,131,597	959,086	5,655,194

HERITAGE PARKS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FALL RIVER	-	131,527	131,527	-	131,527
HOLYOKE	-	43,743	43,743	-	43,743
LAWRENCE	-	30,151	30,151	-	30,151
LOWELL	-	364,087	364,087	-	364,087
NORTH ADAMS	-	67,308	67,308	-	67,308
GARDNER	-	-	-	-	-
TOTAL	-	636,816	636,816	-	636,816

SKATING RINKS	DAY-USE	TOTAL
AUBURN	190,609	190,609
BROCKTON	92,965	92,965
FALL RIVER	136,436	136,436
FRANKLIN	180,362	180,362
GARDNER VETERANS	97,372	97,372
GREENFIELD	78,266	78,266
HAVERHILL	81,915	81,915
HOLYOKE	138,645	138,645
LOWELL	147,124	147,124
MARLBORO	190,414	190,414
NEW BEDFORD	124,952	124,952
NEWBURYPORT	165,064	165,064
NORTH ADAMS	45,653	45,653
PEABODY	146,852	146,852
PLYMOUTH	111,347	111,347
SPRINGFIELD	105,448	105,448
TAUNTON	76,781	76,781
WORCESTER	159,656	159,656
TOTAL	2,263,861	2,263,861

PLANNING & DEVELOPMENT

WATER RESOURCES

WATERWAYS

SWIMMING POOLS	DAY-USE	TOTAL
AGAWAM	17,781	17,781
ATTLEBORO	20,336	20,336
BROCKTON	30,024	30,024
CHICOPEE	17,551	17,551
CLINTON	35,650	35,650
FALL RIVER	32,742	32,742
FITCHBURG	23,961	23,961
HOLYOKE	11,205	11,205
LAWRENCE	28,739	28,739
LEOMINSTER	21,701	21,701
LOWELL	28,061	28,061
LUDLOW	16,310	16,310
MILFORD	16,828	16,828
SOUTHBRIDGE	27,503	27,503
SOUTH HADLEY	14,614	14,614
SPRINGFIELD	15,622	15,622
WESTFIELD	19,458	19,458
WORCESTER #1 (SHINE)	49,331	49,331
WORCESTER #2	48,519	48,519
TOTAL	475,936	475,936

BEACH AREAS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FT. PHOENIX	-	52,495	42,030	10,465	52,495
HORSENECK	26,965	429,136	107,077	322,059	456,101
SALISBURY	206,945	1,769,841	1,644,950	124,891	1,976,786
SCUSSET	43,190	128,199	52,404	75,795	171,389
SOUTH CAPE	1,019	50,531	36,286	14,245	51,550
TOTAL	278,119	2,430,202	1,882,747	547,455	2,708,321

	CAMPING	**DAY-USE**	**TOTAL**
Total Attendance At All Facilities	842,630	10,897,498	11,740,128

FY 1986 SUMMARY OF REVENUE

AREA	DAY USE	CAMPING	OTHER	TOTAL
BEACHES	597,270.50	496,070.00	78,180.03	1,171,520.53
FORESTS & PARKS	928,896.05	1,045,034.00	353,782.31	2,327,712.36
POOLS	97,424.65	-	5,492.92	102,917.57
RINKS	2,443,955.13	-	44,832.65	2,488,787.78
TOTAL	4,067,546.33	1,541,104.00	482,287.91	6,090,938.24

PARKS FY 1986

	PARKING	RECEIPTS	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENT	CHILDREN'S ROLL-TYPE	COTTAGE PERMITS	CONCESSION	MISC	PIER PERMITS	GROUP	PAYPHONE	TOTALS
AMES NOWELL	3,895		720	20	.50		15.50		25.50	486.85				5,163.35
ASHLAND	3,600		60						210.00					3,870.00
ASHMERE LAKE								1,350						1,350.00
BEARTOWN	5,249	6,539	1,160	20		836.50			25.50					13,830.00
BORDERLAND						2,184.00								2,184.00
BOSTON HARBOR IS.										6,977.00				6,977.00
BRADLEY PALMER	7,740		1,020	80		2,330.00			31.75			1,129		12,330.75
BUFFUMVILLE	4,107		940	20	9.75				25.95					5,102.70
CARLISLE						4,521.50			800.00	989.00				6,310.59
CHESTER GARDNER	3,696		200		92.50							225		4,213.50
CHICOPEE	26,250		6,480	140	87.50		1.35		6,562.51					39,521.36
CLARKSBURG	3,642	3,496	2,000	40			23.75		51.00	300.00				9,552.75
COCHITUATE	80,595		17,540	680	370.25				2,400.00		2,360			103,945.25
D.A.R.	17,427	22,638	7,540						458.16	81.30				48,144.46
DEAN POND	6,120	464	1,800		13.75				25.50	1,019.90				9,443.15
DEMAREST LLOYD	28,650		6,140	40					485.25					35,315.25
DIGHTON ROCK	803		60											863.00
DOUGLAS	33,150		6,380	160					400.00	133.00				40,223.00
ERVING	15,720	8,547	7,120	40	46.50					17.00				31,490.50
FEDERATED WOMEN'S														.00
FOXBORO										2,500.00				2,500.00
FREETOWN	2,256		1,440			960.00								4,656.00
GRANVILLE	3,039	4,755	280											8,074.00
HAMPTON POND	24,606		5,180	20	175.50	2,791.00			327.50	75.00				33,175.00
HAROLD PARKER	10,851	67,281	780	20	1.00				157.00				234.04	79,324.04
HOLLAND POND	6,063	1,200							27.00					7,290.00
HOPKINTON	95,526		25,075	700					12,400.99		8	867		134,576.99
LAKE DENNISON	9,840	52,686	2,960						89.95					65,575.95
LEOMINSTER	12,427		6,040		113.75	546.00			500.00					19,626.00
MARTHA'S VINEYARD						648.00				200.00				848.00
MASSASOIT	8,337	73,369	1,680						302.00				99.17	83,784.17
MOHAWK	3,621	26,320	360											30,301.00
MOORE						1,128.00								1,128.00
MT. GRACE	768		120											888.00
MT. GREYLOCK	597	8,338						20,432	1,030.00	66,516.49				96,913.49
MT. WASHINGTON		639												639.00
MYLES STANDISH	34,956	169,767	2,220	600		1,614.00		35,665	1,441.01	1,056.83				247,319.84
NATURAL BRIDGE	13,581		80	40	92.00									13,793.00

PARKS FY 1986 cont.

	PARKING	RECEIPTS	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENT	CHILDREN ROLL-TYPE	COTTAGE PERMITS	CONCESSION	MISC	PERMITS	GROUP	PAYPHONE	TOTALS
NICKERSON		269,859				1260.00			6,383.05	860.00			1,979.50	280,341.55
OCTOBER MTN.	369	20,382											79.17	20,830.17
OTTER RIVER	2,412	14,490	1,300						51.90		135		1.78	18,390.68
OTIS										150.71				150.71
PITTSFIELD	7,045	10,048	400						25.50	7.67				17,526.17
PURGATORY CHASM									61.75					61.75
QUINSIGAMOND LAKE	4,305				1922.25				2,650.00	1546.00				10,423.25
QUINSIGAMOND REGETTA	6,588		2,160		942.50					138.70				9,829.20
ROBINSON	11,200		2,220	39								165		13,624.00
RUTLAND	15,018		3,440		19.50				179.90					18,657.40
SANDISFIELD	5,189		3,180						25.50	75.00				8,469.50
SAVOY MTN.	1,956	17,107	300						51.00	177.01				19,591.01
SHAWME CROWELL	759	94,744				564.00			301.01				262.23	96,630.24
SKINNER						1666.50			25.00					1,691.50
SOUTH CAPE	14,400		1,380											15,780.00
SPENCER	5,451		1,180		13.75	852.00								7,496.75
TOLLAND	12,132	35,064	1,360		3.75				25.50					48,585.25
TULLY REC. AREA	9	1,890												1,899.00
UPTON						570.00								570.00
WACHUSETTS MTN.	109									96017.00				96,126.00
WALDEN POND	137,288		34,100	40					4,865.00	75.00			130.19	176,498.19
WARREN MANNING	768		180	20										968.00
WATSON POND	10,587		2,680	180	49.50		5.70		450.00					13,952.20
WELLS	766	29,106							25.50	31.10				29,928.60
WELLS STREETER	10,553		4,000		103.75				65.00					14,721.75
WENDELL	3,444		2,735		12.50				25.50	500.00		180		6,897.00
WILLARD BROOK	14,700	12,888	4,340	20		342.00			154.45					32,444.45
WILLARD BR. PEARL HILL	6,750	8,295	2,580											17,625.00
WINDSOR	4,809	2,951	1,280	100	6.25				51.00	45.00				9,242.25
WOMPATUCK	549	82,171				2167.00			30.00					84,917.00
OFFICE ACCOUNT			640					5,000		21367.15				27,007.15
TOTALS=	744,268	1,045,034	174,830	3,109	4,076.75	24,980.50	46.30	62,447	43,223.13	201,342.80	2,503	2,566	2,786.08	2,311,122.56

	TRAILERS	LAUNDROMAT	SEASON PASS	MISC	TOTAL
WALDEN BREEZES	15,615.00	884.80			16,499.80
TOTALS=	15,615.00	884.80			16,499.80

RINKS FY 1986

	CHILDREN	ADULTS	SPECIAL EVENTS	RENTALS	WALK-INS	LOCKERS	CONCESSION	PAYPHONE	MISC	JOGGING	TOTALS
AUBURN	4,558.50	8,227.00	1,088.00	123,635.00		805.25	700.00	68.19			139,081.94
BROCKTON	5,939.50	7,267.00	4,841.50	146,685.25		869.50	2,400.00	63.02			168,065.77
FALL RIVER	4,834.50	6,528.00	4,937.25	28,212.50		1,142.00		96.66	645.00		146,395.91
FRANKLIN	6,658.50	6,704.00	9,164.50	166,491.88		481.25	8,500.00	103.37	5.00	42.00	198,150.50
GARDNER	3,133.50	3,698.00	898.00	101,150.00	2.00	361.00	1,600.00	25.24	43.00		110,910.74
GREENFIELD	3,634.50	2,552.00	1,018.00	71,410.00		189.00		34.32			78,837.82
HAVERHILL	3,221.00	2,991.00	2,136.50	120,780.00		347.75	2,250.00	38.74			131,764.99
HOLYOKE	2,135.00	3,140.00	2,672.00	112,255.00		261.50		25.57			120,489.07
LOWELL	4,374.50	7,794.00	2,697.25	166,197.50		1,018.60	607.92	40.64			182,730.41
MARLBORO	4,664.50	7,734.00	2,618.00	120,285.00		222.15	800.00	32.24	18.80		136,374.69
NEW BEDFORD	2,872.50	5,992.00	9,513.50	119,357.50		696.90	1,701.00	147.05			140,280.45
NEWBURYPORT	6,134.50	5,980.00	11,664.00	145,260.00		510.10		84.69		63.00	169,696.29
NORTH ADAMS	1,414.00	2,865.00	1,658.50	48,192.50		147.75	325.00	13.44	500.00		55,116.19
PEABODY	4,617.50	6,763.00	5,332.50	146,837.50		503.50	6,333.33	62.74	7.00		170,457.07
PLYMOUTH	4,692.50	4,420.00	3,361.50	121,712.50		668.00	23.00	72.10			134,949.60
SPRINGFIELD	2,718.00	5,439.00	708.00	114,277.50		383.00	300.00	28.01			123,853.51
TAUNTON	2,361.00	5,381.00	4,268.00	132,305.00		537.25	1,700.00	61.63	5.70		146,619.58
WORCESTER	5,171.50	8,407.00	1,666.50	113,647.50		641.00	5,440.00	39.75			135,013.25
TOTALS	73,135.50	101,882.00	70,243.50	2,198,692.13	2.00	9,785.50	32,680.25	1,037.40	1,224.50	105.00	2,488,787.78

POOLS FY1986

	CHILDREN	ADULTS	PASSES GROUP	LOCKERS	PAYPHONE	CONCESSION	MISC.	TOTALS
AGAWAM	2,668.25	1,730.50				240.55		4,639.30
ATTLEBORO	3,259.75	2,799.50				350.00		6,409.25
BROCKTON	5,403.00	4,079.00				1,002.00		10,484.00
CHICOPEE	2,940.50	1,409.50				25.50		4,375.50
CLINTON	3,511.50	1,216.50				229.99		5,027.99
FALL RIVER	6,414.50	1,245.00				200.00		7,859.50
FITCHBURG	3,480.25	1,055.00				161.75		4,697.00
HOLYOKE	1,899.75	734.00				202.50		2,836.25
LAWRENCE	5,621.25	1,700.50				506.12	21.60	7,849.47
LEOMINSTER	2,519.50	848.00			18.50	497.96		3,883.96
LOWELL	4,958.70	923.00						5,881.70
LUDLOW	2,155.25	623.50				100.60		2,879.35
MILFORD	3,199.75	1,637.95				132.00		4,969.70
SOUTHBRIDGE	3,537.50	432.00				25.50		3,995.00
SOUTH HADLEY	2,177.75	1,618.00				25.50		3,821.25
SPRINGFIELD	2,182.50	329.50				25.50		2,537.50
WESTFIELD	3,443.25	1,195.50				236.10		4,874.85
WORCESTER #1	4,884.75	2,533.00		5.25		200.00		7,623.00
WORCESTER #2	4,647.50	2,409.50				501.00	715.00	8,273.00
TOTALS	68,905.20	28,519.45	-0-	5.25	18.50	4,732.57	736.60	102,917.57

BEACHES FY 1986

	PARKING	RECEIPTS	WALK-INS	SEASON PASS	BATH-HOUSE	CONCESSION	LOCKERS	PAYPHONE	MISC	BUS	RETURNED REFUND CH.	TOTALS
FT. PHOENIX	9,690			6,320		328						16,338.00
HORSENECK	312,600	57,338	78.50	51,800		60,796.16		130.04	449.80	720	6	483,918.50
SALISBURY	114,750	320,737		22,221		7,632.50	20	1,988.58	3,452.50	200	84	471,085.58
SCUSSET	72,411	117,995		6,360		2,677.01		611.44	4.00	120		200,178.45
TOTALS	509,451	496,070	78.50	86,701	-0-	71,433.67	20	2,730.06	3,906.30	1,040	90	1,171,520.53

Bureau of Forest Development

Thomas F. Quink, Chief Forester

Maximizing the values and benefits of both public and private woodlands, as well as pursuing effective stewardship of the Commonwealth's renewable forest resources. These aims continue to be the focus of the Bureau through its Service Forestry, Management Forestry, Forest Products Marketing, Resource Conservation & Development and Forest Resources Planning programs.

A. Service Forestry - Private Land Management

The service forestry program focuses primarily on two state statutes: the Forest Taxation Law (M.G.L. Ch. 61) and the Forest Cutting Practices Act (M.G.L. Ch. 132 s.40-46). A new service forester district, Central Worcester, was established in the latter half of FY 86 and was filled by the former Middlesex County service forester.

FY'86 Major Accomplishments:

Approved 508 forest management plans for Chap. 61 classification, encompassing 42,669 acres of private forestland for long-term stewardship. Approved and inspected 816 cutting plans, as governed by the Forest Cutting Practices Act. These cutting plans prescribed 57.8 million board feet and 65,336 cords of timber for commercial harvesting. Inspected over 100 Tree Farms for certification in the American Forest Council's Tree Farm program. Attended, conducted and participated in numerous conferences, workshops, meetings and special events.

B. Management Forestry - State Lands Management

Management foresters are responsible for the planning, implementation and supervision of forest management practices and harvesting of forest products from more than 270,000 acres of DEM forestland.

FY'86 Major Accomplishments:

Foresters marked and sold 5.04 million board feet and 6,387 cords of timber in DEM forests. These sales of forest products were designed as timber stand improvement cuts, salvage cuts and regeneration cuts; and realized $494,784 in committed revenue to the General Fund. Numerous special projects included cooperating with U. Mass. Forestry professors on several field studies, and programming many of the Bureau's clerical and technical functions for personal office computers. In addition, various conferences, workshops and meetings were attended to represent DEM and the forestry profession.

C. Forest Products Marketing & Utilization

The M&U program assists forest landowners, wood processors and wood products manufacturers through technical services, advice, referrals, marketing and industry promotion.

FY'86 Major Accomplishments:

M&U staff played a major role in developing a trade show, the Northeast Wood Products Expo '85 (NEWPEX '85) - the first of its kind in the Northeastern U.S.A. for wood products manufacturing industries, held in Boston, November 1985. The main intent of this annual trade

show is to foster the expansion of markets for the industry. Currently involved in developing the NEWPEX '87 show. Published primary and secondary industry directories and distributed to many firms in the private sector throughout North America. Arranged and hosted an "Exporting Forest Products" 4-day workshop for counterparts of forestry and commerce agencies in 20 states.

D. Resource Conservation & Development

RC&D is a cooperative Federal/State/Local rural development program aimed at improving local economies and the standard of living through conservation, wise use and development of natural resources.

FY'86 Major Accomplishments:

Participated in a panel presentation at a CONEG/DOE Wood Energy workshop. Organized and set up the Tree Farm booth at the Eastern States Exposition. Prepared letters to U.S. Treasury Dept. regarding proposed tax reforms affecting woodland owners. Advised a wood products manufacturing firm in setting up the latest technology for short-log processing into standardized wood blanks.

E. Urban & Community Forestry

U&CF provides technical forest management assistance and advice to the 351 municipalities in Massachusetts. With the creation of a new Service Forester position in Central Worcester County, the Urban Forester trans-

ferred to the Essex County Service Forester position in the spring of 1986. U&CF will be filled in FY'87 by an urban tree pathologist based at the U.Mass. Suburban Experiment Station in Waltham.

FY'86 Major Accomplishments:

Oversaw the "Spirit of '85/'86" statewide beautification program at state parks. Paricipated in formulating projects in the Urban Forestry sub-committee on the Yankee Forest Cooperative Project.

F. Forest Resources Planning Program

Focuses on long-range, comprehensive forest resource analyses and planning.

FY'86 Major Accomplishments:

The state forest resources plan, " Massachusetts Forest Resources - A Working Guide to Action", was completed, published and distributed. The Plan sets in motion important planning to enhance the social, economic and environmental benefits derived from the Commonwealth's forest resources. Planner served as DEM's Coordinator for the Mass. Prime Timberlands Mapping Project at the U.Mass Forestry & Wildlife Department. Served on the Northeastern Forest Resources Planners Association's standing committee.

BUREAU OF SHADE TREE MANAGEMENT AND PEST CONTROL

ANNUAL REPORT FY 86

INTRODUCTION

For the first time in the history of the Bureau the words "Shade Tree Management" and accompanying word changes in Chapter 132, G.L. have increased the scope of responsibility of the Bureau.

Gypsy moth continues to be the number one insect pest of forest and shade trees and seems to cause the greatest concern to homeowners and woodlot owners.

Survey and detection of all major insects and diseases affecting forest and shade trees is on one of the primary functions of the Bureau. To this will now be added the responsibiity to encourage communitites in the management, care and protection of the shade trees.

A. Passage of Chapter 765, Acts of 1985

An act relative to insect pest control and establishing a program to encourage communitites in the care, control and management of public shade trees was enacted by the Legislature and signed by the Governor in January of 1986. The Bureau responsibility for the suppression of the public nuisances as named in Chpater 132, Section 11, G.L. has been increased by adding the reponsibility for providing the cities and towns with technical, consulting and financial assistance in shade tree management and aboriculture service.

To implement changes in Chapter 132, G.L. Commissioner Gutensohn established a Shade Tree Advisory Committee. At this writing a final report is being prepared following a series of meetings and input from knowledgeable individuals.

B. Gypsy Moth

The annual aerial survey to detect and map current defoliation indicated a total of 477,805 acres of visible defoliation by this pest. (Map attached) Areas of most concern continue to be Southeastern Massachusetts including Southeast Worcester County, Norfolk and Bristol Counties, Plymouth County and Barnstable County.

Two communities, Blackstone and Northbridge, took advantage of the cooperative agreement between the Department and the U.S. Forest Service and sprayed to control the gypsy moth. The agreement calls for 50% reimbursement. The combined reimbursement for the two communities totalled $23,125.

Gypsy moth research also played a major role in Bureau activity during the year. Work continues on the attempt to develop an early warning system for ourbreaks by means of male gypsy moth traps placed strategically throughout the state. This work is being conducted in cooperation with the Entomology Department at the University of Massachusetts, Amherst.

A three year mortality study was completed this year in an attempt to determine the loss of forest trees due to the gypsy moth. Final figures indicate mortality of trees over 5" d b h to be 17.3%.

C. Oak Leaftier

Although outbreaks of this insect complex are less frequent than gypsy moth outbreaks the results are more severe. At the present time an outbreak situation exists in Norfolk and Bristol Counties. An aerial survey indicated a total of 108,653 acres of visible defoliation.

D. Tree Crew Activities

The five Bureau tree crews are comprised of personnel and equipment capable of performing work consisting of tree removal and climbing and pruning. Records show that they worked in 76 Forest and Park areas and removed 1539 dead and/or hazardous trees. Although a total count is not available they were also responsible for the pruning and removal of many dangerous and unsightly limbs. They were also utilized in the cleanup after the near tornado hit the towns of Warren and Ware and after Hurricane Gloria.

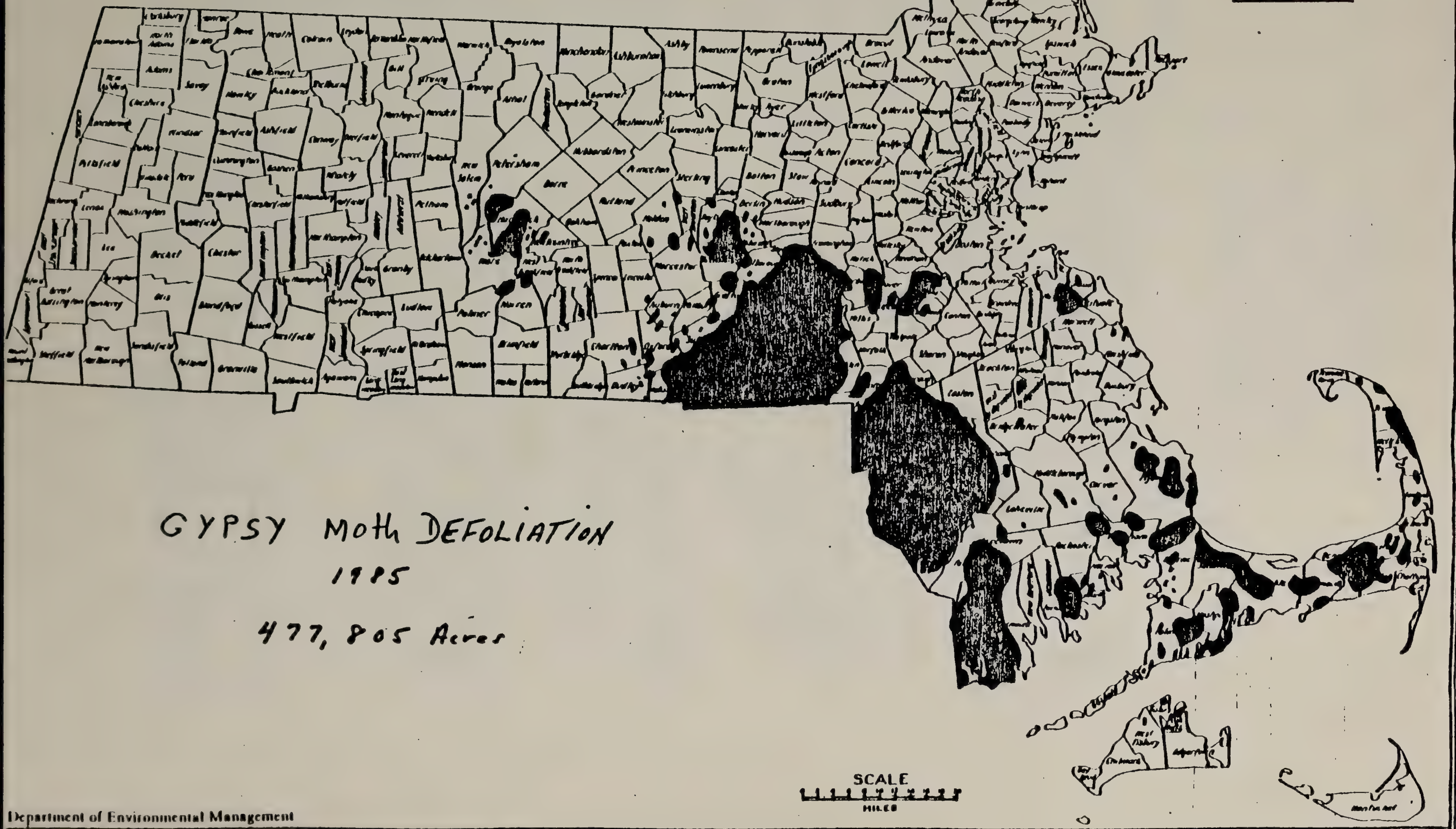
The crews also play an important part in the crucial egg mass survey work which tells us and the communitities what to expect for gypsy moth activity in the following season.

C.S. Hood, Chief Superintendent
Bureau of Shade Tree Management
and Insect Pest Control

MASSACHUSETTS

CITY AND TOWN LINES

MAP A



GYPSY Moth DEFOLIATION
1985
477, 805 Acres

Department of Environmental Management

PLANNING & DEVELOPMENT

WATER RESOURCES

WATERWAYS

ANNUAL REPORT

FISCAL YEAR 1986

BUREAU OF URBAN SERVICES

ROBERT E. FREEDMAN

INTRODUCTION

Fiscal Year 1986 saw the Bureau of Urban Services expand its operational management responsibilities to include the Lynn Heritage State Park and the Lowell Locks and Canals. The Lynn Waterfront Park will be the site for summertime concerts, various recreational programs, and the North Shore access point to the Boston Harbor Islands State Park with free water taxi service to the island park. The Lowell Locks and Canals will enable us to control the future condition of these historic structures.

Throughout Fiscal Year 1986 two major projects were completed: the first, the addition of a permanent puppet show at Lawrence Heritage State Park. A theatrical consultant was hired to instruct the staff in the design, fabrication and production of puppet theater. The staff accomplished this and wrote the stroyline which focused on the value of the Merrimack River to the City of Lawrence, both past and present. The first showing occured during the February school vacation, with successive shows in April and early summer. The theater will become a permanent activity at the park.

Dr. Gerry Fain from Boston University was hired to train Heritage State Park program staff on how we can improve accessibility through recreation and interpretive programs. Through actual park visits and workshops, Dr. Fain was able to enlighten all involved on what considerations would be taken into account, and methodology used, to improve accessibility. A Policy Statement similiar to that of the National Park Service resulted from this work.

Park Evaluations were an important part of the first full year of operation for most of the Heritage Parks. The procedure, involved a step by step analyis of the management of each park. Everything from record keeping, filing, and maintenance programs was evaluated. This process makes for a much clearer understanding of what is expected from and by all persons involved, and it assures that established standards of operation are adhere to.

MAJOR EVENTS AND PARK VISITATION

Fiscal Year 1986 saw Grand Openings at three Heritage State Parks. Holyoke's exhibit in the Summer, Western Gateway Park and Lynn Waterfront Park in the Fall. All three were gala events with thousands of people attending. In Holyoke, the celebration ended with a "laser light show". In North Adams (Western Gateway) the Berkshire Highlander Band entertained during the opening ceremonies, and in Lynn the "Spirit of Massachusetts" berthed at the park.

Both the Heritage Parks and Boston Harbor Islands State Park saw increased visitation, mainly due to promotion by park and Communications Office staff.

BUILDINGS AND GROUNDS

The Bureau continued to provide in-housing training for maintenance staff through Fiscal Year 1986. This training was provided at no cost to the Commonwealth, by independent sales persons and state employees with specialized skills. Our aim is to maintain both buildings and grounds in "estate quality" condition. This years training topics were: Floor Care - from stripping and waxing hard wood floors to the type of materials to buy; Hard Surface Care - removal of graffitti on a number of surfaces (brick, granite, wood, etc); Tree/Lawn Care - from identifying disease, insect, and/or planting problems to transplanting and daily care.

On a continuing basis the Bureau Horticulturist provides in-house training on flower bed preparation and care. Also this year, horticultural programs were provided for the general public and were well attended at all of the Heritage Parks.

PROGRAMS

Fiscal Year 1986 saw a continuation of the Recreational, Interpretive and Boating Programs that people have come to associate with and enjoy at the Heritage State Parks. Band concerts, craft shows, promotion of rural state parks, architectural tours, living history, and junior ranger programs are just a few of the many interesting and diversified programs available throughout the year.

The sailing programs and excursion boats at Lowell and Fall River Heritage Parks have proven to be very popular programs which are often "booked" prior to the start of each program.

At Western Gateway Heritage State Park an Environmental Education component focusing on everything from the city to the woods as "The Environment" was begun and will be introduced to the schools in the Fall of 1986. This program was developed by the Bureau of Interpretive Services and the Western Gateway Heritage State Park Visitor Services Staff.

The Forest Resources Plan produced by the Bureau of Forest Development in 1986 has specific goals for the integration of Division Bureaus. The Bureau of Urban Services used this as an opportunity to introduce technical urban forestry to Heritage Park staff so that programs can be arranged throughout the Heritage Park cities. These programs will serve to educate the local citizens as to the importance of street trees. The programs will be jointly sponsored by the Bureau of Urban Services and the Bureau of Shade Tree Management and Insect Pest Control.

One lesser known responsibility of the Bureau is to provide Technical Assistance in park and recreation management to cities and towns. This was provided to the Town of Medfield in Fiscal Year 1986. Both the Bureau Chief and Assistant Chief responded to a request to review existing recreational sites and funding possibilities for expansion.

The Bureau Horticulturist joined the New England Chapter of Horticultural Therapists to learn what can be done for persons who are not in a hospital setting by using plant care and propagation as a form of therapy. This program is new and will be integrated with the on-going Horticulture programs.

PARK PLANNING/EXHIBIT DESIGN

Five new Heritage State Parks (Blackstone River and Canal, Dorchester/Milton Lower Mills, Long Wharf, Roxbury, and Turners Falls) are in various stages of design. Meetings throughout the year are attended by Bureau and park staff relating to existing parks and future needs.

Gardner and Lawrence Visitor Center exhibits are presently being installed, with official openings to take place in Fiscal Year 1987. Also in Gardner, the Dunn's Pond building is in the final design stage and should be completed in Fiscal Year 1987.

AWARDS/CONFERENCES

The Bureau of Urban Services was proud to have Brian Shanahan, Supervisor of Boston Harbor Islands State Park chosen as one of the six Department of Environmental Management persons to receive the State Employees Pride and Performance award.

In Fiscal Year 1986 five Bureau employees were nominated for this award and and received Certificates of Recognition: Grace Vitello, Secretary, Boston Office; Terri Talas, Graphic Artist; Ron Lambert and Nory Rogers, Buildings and Grounds Supervisors at Lowell and Lawrence, respectively; and Robert Freedman, Bureau Chief.

The Bureau was recognized for its innovative programs by winning the New England Arts and Humanities Award. This award was presented to the Bureau for its Program Style and Content by the National Recreation and Park Association.

Photovoltaic Project Proposals were submitted to the Department of Energy for grant funding (Boston Harbor Islands State Park Management Base, Dunn's Pond Excursion Boat, and Remote Parking Lot Lighting). The Floating Management Base (Boston Harbor Islands State Park) was approved. Construction of the base is underway and the project will be completed and ready for use in Fiscal Year 1987.

Red pine cut from the state forests and parks was cut and milled at the Warwick State Forest for use as replacement slats on the Heritage State Park benches and tables. This ready supply will enable the parks staff to immediately replace damaged wood park furniture.

Sign standards for the Heritage State Parks and Boston Harbor Islands State Park were reviewed for compliance with the Department Graphics Mannual. Due to the individual signage requirements for the urban parks, individual park by park reviews were conducted and management profiles for each park will be completed in Fiscal Year 1987.

ANNUAL REPORT SUMMARY

1986

BUREAU OF INTERPRETIVE SERVICES

KARL W. HONKONEN

Interpretive Services began implementing its ten year master plan in FY86. The first reccomendation in this plan was to establish imterpretive services as an independant bureau which has been accomplished on an administrative level. This important first reccomendation allows interpretive services to function independently with other bureaus in implementing interpretive efforts division - wide.

FY 86 HIGHLIGHTS:

1. Interpretive programs implemented at Ames Nowell, Natural Bridge and Maudslay State Park.

2. The summer program of walks, talks and evening programs at 27 parks, forests and reservations continued to inspire enthusiastic audiences from across the state.

3. Park festivals continue to attract enthusiastic audiences across the state. Fun Fish Festivals held in conjunction with the Division of Fisheries and Wildlife's Urban Angler Program were held at Salisbury Beach, Ames Nowell and Nickerson State Parks. Other popular festivals include the first annual "Rock Day" at Pilgrim Memorial State Park and a variety of evening folk singers, lecturers and demonstrations.

4. Interpretive Services staff assisted in the development and presentation of several award winning exhibitions. Exhibits at the Eastern States Exposition, New England Flower Show and Boston Seafood Festival drew encouraging comments from appreciative crowds and earned several awards.

5. The Division's Junior Ranger Program expanded it's activities in park and resource management, interpretation and outdoor skills to a total of seventeen parks. Participants ranging from 10 - 14 years of age became actively involved in the management of the natural and cultural resources of their local parks.

6. The addition of rollover funding has allowed interpretive services to signifigantly strengthen programs by providing audio visual equipment, graphic supplies, interpretive exhibits and resource books.

7. Several new brochures were created by adding a graphic artist to our summer staff. Natural Bridge, Pittsfield, Salisbury Beach and the Cape Cod Rail Trail all received new brochures designed to enhance visitor appreciation of the site.

8. Interpretive services role in park planning has been strengthened by developing an Interpretive Prospectus to be used by the Division of Planning and Developments GOALS teams. This prospectus establishes criteria for inventories, theme statements, existing interpretive programs and proposed programs.

9. Interpretive Services continued its positive support of many friends groups who donate many hours of volunteer time and fundraising dollars to improve interpretive efforts at several DEM Facilities. A new friends group, the Maudslay State Park Association was established during FY86. Future friends activities at Maudslay include sponsoring a fall lecture series, recreation events and garden restoration.

DIVISION OF FORESTS AND PARKS
BUREAU OF FIRE CONTROL
ANNUAL REPORT FY '86

INTRODUCTION

The Bureau of Fire Control added a new title to its complement of positions. In the fiscal 1986 budget the Legislature approved the new position of Assistant Fire Warden. This position was greatly needed to administer the very popular Federal Excess Property Program which has blossomed into a cost saving device for many of the fire communities in the state. Training of Bureau personnel will be another major responsibility of this position.

In comprising Bureau statistics for fiscal 1986 many areas of accomplishments can be noted. Twenty-two new communities enrolled into the Federal Excess "Pass Through Program". Equipment and vehicle value of property transferred to fire communities totaled $555,680.00. Communities receive property at no cost to the local taxpayer. Our fire tower detection network detected and reported 3,160 fires to their respective county municipalities. This total reflected better than 50% of all fires in the Commonwealth are reported by our tower system. Logging inspections under M.G.L., Chapter 132 increased from 2,793 in fiscal 1985 to 3,381 in fiscal 1986. Violations of this statute decreased from 454 violations in 1985 to 183 in 1986. This reflects a considerable amount of forest cutting practice education performed by the Bureau fire personnel. There were 6,162 forest fires reported and only 9,110 acres burned. Once again our immediate detection of fire locations, rapid reporting procedures to the fire communities results in quick response and reduced acreage lost by wildfire. The safety of human life and the preservation of our environment is our highest priority.

Our Smokey the Bear Prevention Program has increased in number for the past four fiscal years. In fiscal 1983 we performed 590 programs, in fiscal 1986 we reached 632 Smokey Programs. This year's Smokey the Bear Poster Contest reached 125 school districts with over 1500 participants, including adults and senior citizens. As an added incentive in this year's program, the Bureau awarded a $25.00 ($50.00 maturity) savings bond to the six category winners. Our thanks to the Federated Garden Clubs of Massachusetts for their assistance and to Governor Dukakis for making the program a great success.

During recent union negotiations with the Commonwealth certain Bureau titles were changed much to the chagrin of the rank and file fire personnel. Firefighter I replaced Patrolman, Firefighter II replaced District Fire Warden and Firefighter III replaced Assistant Chief Fire Warden. The Department has notified the Office of Employee Relations that it does not consider the change conducive to the duties expected of its personnel.

In conclusion, our assistance to other Bureaus in the Division of Forests and Parks, 15,972 manhours, exemplifies the professionalism of their daily work habits.

A. FEDERAL EXCESS PROPERTY PROGRAM

The Federal government authorized the Department of Agriculture - the United States Forest Service to enter into an agreement with the Commonwealth of Massachusetts and its designee, the Department of Environmental Management, Bureau of Fire Control, to administer the Excess Property "Pass Through" Program. This program has generated a tremendous amount of interest from the rural fire communities in the Commonwealth.

Since the inception of the program in November of 1980, 183 rural communities have entered into agreements with the Bureau of Fire Control to accept federal excess property under the terms set forth by the U.S. Forest Fire Service, the General Services Administration, and the Massachusetts Bureau of Fire Control. This reflects and increase of 22 communities from fiscal 1985.

In fiscal 1986 excess property from the federal government was in heavy demand by the rural fire communities in every county. Communities who acquired property put a tremendous amount of effort in rehabilitating the same. Tank trucks, fire trucks, pick-up trucks and generators were beyond many small communities economic goals. These same pieces of property could not be purchased new.

By acquisition through the "Pass Through" Program many communities were able to fulfill the fire protection needs that the towns people demanded at no cost to the particular town.

Over 150 communities received many items of excess property this past fiscal year. Desks, chairs, filing cabinets, bookcases, storage cabinets, typewriters, vacuum cleaners, fire protective clothing, shop equipment and small tools, were many items in demand by many small communities. The approximate dollar value of all excess property transferred to RFD's in fiscal 1986 totaled $555,680 dollars. Since the inception of the "Pass Through" Program in 1980, a dollar value of $1,606,831.00 in excess federal property was transferred to the rural fire communities of the Commonwealth.

This past fiscal year the Bureau screened and acquired $1,079,490.00 dollars worth of federal excess property that was transferred to rural fire communities and to the five regions under the Division of Forests and Parks.

The process of acquiring material starts with the Fire Chief of a town when he submits his letter requesting participation together with his prioritized list. Request for equipment must be accompanied with a justification sheet which indicates the need for and how it will benefit his community and how it will be used and garaged. We then send the Chief a copy of our agreement which he signs and returns for the signatures of the Director and the Commissioner.

When the desired item is available and the Chief agrees to accept it, an addendum is filled out with the pertinent information of the item and signed by the Chief. Copies of the agreement, addenda and receiving GSA copy are sent to the Chief, District Fire Warden and Excess Property Coordinator with the original remaining in the Boston office.

The in-house machinery to administer the program includes five Regional Excess Property Coordinators who have the responsibility of maintaining the flow of records from the field to Boston in the same way the flow is from Boston to the Excess Property Coordinators.

The District Fire Wardens have direct contact with their Fire Chiefs and he in turn will start the process from the town to the Regional Coordinator.

The Bureau has administered the Excess Property Program since the 1960's when the U.S. Forest Service enabled the states to use their high federal priority to acquire property that would improve their fire protection capabilities.

The present dollar value of our Excess Property Inventory is $3,063,690.00 an increase of $328,834.00 from fiscal '85.

B. SMOKEY BEAR POSTER CONTEST

The Bureau of Fire Control in cooperation with the Massachusetts Federated Garden Club conduct a Smokey Poster Contest throughout the state's many school departments. Over 1500 youngsters from kindergarten through high school grades compete for four awards. Also included are participants in the adult and senior citizen category. Winners selected in Massachusetts compete in Regional and National competition.

The highlight to being one of the six category winners is a visit with the Governor. Winners are honored with Departmental citations, Smokey Bear plaques and citations from the Governor. As an added incentive, a $50.00 Savings Bond was also awarded to each category winner.

Governor Dukakis greeted the winners and their families in his chambers on May 15, 1986. He also proclaimed the date as Smokey Bear Poster Contest Day.

Smokey's presence with the Governor in passing out the awards has always proven to be one of the most successful methods in promoting Smokey's Forest Fire Prevention Program. Each year more and more Garden Club community members are participating and spreading Smokey's message.

C. PREVENTION AND TRAINING

The training of Bureau personnel is an ongoing program within the individual fire districts to sharpen the skills and improve the fire behavior knowledge of the year-round and seasonal personnel. Training sessions have also been conducted inter-district to familiarize personnel with specialized equipment, fuel load and/or topographic characteristics that may vary from one district to another. This past fiscal year the Bureau had 1,381 in-house training sessions and 365 training sessions with other bureau and rural fire districts.

Statewide training was instituted for Division personnel to qualify them as inter and intra state fire fighting crews. Instructors were drawn from the Department's branches utilizing their expertise wherever called for in the lesson plans of the Basic Firefighter and Fire Behavior courses.

The Bureau of Fire Control in conjunction with the United States Forest Fire Service and its Northeast neighbors attended various conferences, seminars and training sessions during this past fiscal year.

D. PRESUPPRESSION - CONSTRUCTION - MAINTENANCE

Each year our construction crew headquartered in Brimfield performs many tasks in restructuring fire towers, cabins, telephone and power lines. This year was no exception. Seventeen fire towers had work performed on them. The crew's expertise in all phases of construction activity is invaluable.

The fire construction crew spent many manhours on many other Division facilities: without their expertise in all phases of construction and rehabilitation work the cost to accomplish this work would be beyond budgetary limits.

The crew also traveled extensively throughout the state to inspect tower sites and inventory future construction and rehabilitation projects. They also visited skating rinks where welding of broken bleachers was a high priority.

E. TRAINING

Federal Excess Property Coordinators Workshop

The State of Indiana hosted the Federal Excess Property/Rural Community Fire Protection Workshop in Bloomington, Indiana on September 16th through the 19th. The Assistant Chief Fire Warden was Co-Chairman of this very informative workshop. New General Services Administration procedures and general ideas on excess property acquisition were discussed.

Fire Protection Economic Analysis Workshop

The U.S. Forest Service sponsored a forest fire economical analysis workshop at Utah State University in Logan, Utah. The Assistant Chief Fire Warden attended this workshop on February 2nd through 7th. The Federal government is requiring all states which receive federal fire grants to complete a ten-year economic computerized report on the actual monetary value needed to run this program. An intensive week on computer data training highlighted this program. This cost analysis report must be completed by 1987.

Woodland Firefighting Training

The Bureau, in cooperation with the Massachusetts Fire Academy are preparing a safety slide training program which will benefit all fire communities in the state. This training presentation will be offered in the fall of 1986. Bureau

personnel have been working with the Academy instructors for the past year in making this one of the finest presentations on forest fire safety techniques in the country.

F. MASSACHUSETTS FOREST FIRE COUNCIL

The Massachusetts Forest Fire Council has proven to be a very important organization to the Bureau of Fire Control. The Council has representation from every forest fire association in the Commonwealth. The Council meets quarterly to discuss important forest fire techniques and procedures.

A progress report is presented to the Council by the Chief Fire Warden during these sessions. By statute the Bureau has the responsibility to assist all fire communities in all related detection, prevention, pre-suppression and suppression activities.

G. NORTHEASTERN FOREST FIRE PROTECTION COMMISSION (COMPACT)

The Northeastern Interstate Forest Fire Protection Compact Public Law #129 - 81st Congress was passed to promote effective prevention and control of forest fires in the northeastern region of the United States and adjacent areas in Canada by maintenance of adequate forest fire fighting services by member states and by providing for mutual aid in fighting forest fires. This law was approved by Congress in 1949. It was designated as "The Northeastern Forest Fire Protection Commission " (COMPACT).

The COMPACT is comprised of three Commissioners from each state and the provinces of Quebec and New Brunswick who appoint an Executive Director who will perform all the duties customarily performed by a secretary and a treasurer. There are three standing committees designated: Operations Committee (Fire Supervisors), Training Committee and Equipment Committee. Each standing committee shall have one representative from each COMPACT member state.

Committees shall meet not less than once per year and shall present a report of its activities to the annual meeting of the Commissioners held every July.

The COMPACT is comprised of fire personnel from Massachusetts, Connecticut, Rhode Island, New York, Vermont, New Hampshire, Maine and the Provinces of Quebec and New Brunswick from neighboring Canada.

Each year COMPACT holds a training seminar in New Hampshire to instruct COMPACT crews in the latest advances in forest fire control and how to react to inter and intra state emergencies.

COMPACT Winter Training

This year's COMPACT winter training seminar was held in Concord, NH, on February third through sixth. This year's training theme stressed the importance of Service Chief, Plans Chief and Fire Boss in relation to fighting wildland fires. In attendance was the Chief Fire Warden and all the District Fire Wardens. Many of the Bureau personnel considered this year's training session most beneficial in preparing them for any future inter-state firefighting endeavors.

H. PREVENTION

The Bureau of Fire Control personnel receive many requests to visit elementary schools throughout the year. With Smokey in attendance our personnel presented many seminars pertaining to fire prevention in an educational atmosphere. This program has proven very beneficial in acclimating our younger generation in the practice of fire prevention at a most critical stage of their inquisitive life.

Smokey has played a major role in reducing forest fires over the past 42 years. In 1942 more than 10 million acres of our woodlands were burned or destroyed. In 1985 only 3 million acres were reported burned. This was a savings to the American people of over 20 billion dollars.

In Fiscal 1986 Smokey Prevention Programs were administered in every Bureau fire district in the state. We were able to reach approximately 20,150 young elementary school children. We disseminated over $8,000 dollars worth of Smokey Bear prevention material. We performed 632 Smokey Bear Prevention Programs. Our programs were also administered to older ditizens and community functions. Smokey still provides a great deal of excitement at parades and community functions.

The Bureau also plays a very important role in fire prevention during the annual Fire Prevention Week in October. Many rural fire communities request our assistance during this period.

I. FOREST CUTTING PRACTICE LAW (M.G.L. 132)

Another important prevention program is the issuing of criminal citations and warnings to individuals in violation of the Massachusetts Forest Fire Rules and Regulations and M.G.L. Chapter 132 pertaining to Forest Cutting Practices. We issued 412 citations and warnings in Fiscal 1986. This was a decrease of 42 warnings and citations over Fiscal 1984. District 10 in Hampshire County issued 85 Chapter 132 violation warnings and 50 fire law violation warnings.

The inspection of logging operations takes up a great deal of the District Fire Warden's and Forest Fire Patrolman's work day. The new Forest Cutting Practices Law has increased the responsibility of these key personnel. In Fiscal 1985, we had 2,793 logging operations. This past fiscal year we inspected 3,381 logging sites. This increase of 588 inspections reflects the active role the Bureau is playing to insure that the letter of the law is followed on Commonwealth and private landowner woodlots. Fire District 10 experienced 643 logging inspections this fiscal year. The inspection serves a twofold purpose; it establishes uniform fire minimizing standards with loggers, and it familiarizes our fire personnel with fuel conditions and terrain they might not ordinarily be aware of .

J. DETECTION

The detection system in Massachusetts is still provided by a combination of aerial observation and ground observation stations. In the counties east of Worcester County, ground observation stations are maintained and operated by the Commonwealth. This system is backed up during periods of high fire danger

in Plymouth and Barnstable Counties by county supported planes. In the western counties and including North Worcester County, a combination of ground observation and aerial observation is utilized and supported entirely by the state.

We spend considerable time training fire tower observers to pinpoint the exact location of fires. This vital information is relayed to the rural fire dispatchers who in turn activate the suppression forces in their particular town.

The Bureau plays a very important role in assisting many small rural communities in all types of wildfire training. Immediate detection and response to incipient wildfires contributes to the reduction of acres burned and property lost.

With 43 active fire towers and a high band statewide radio communication system, the Bureau is able to offer rural fire departments an invaluable asset in wildland firefighting detection capabilities. This past fiscal year our towers detected 3,160 fires. Fires reported by communities totaled 6,162 forest fires. During the past three fiscal years the Bureau's fire tower observers have reported more than 50% of the total fires rural fire departments have responded to. This detection system is a very valuable asset in reduction of damage to life, property and valuable timber which is our only renewable natural resource.

In keeping with Director Bliss' request for sustained patrol activity, the Bureau's Forest Fire Patrolman have logged a total of 498,325 miles. This reflects a decrease in patrolling activity of 118,245 miles from fiscal 1985. The decrease in patrolling can be attributed to a very active fall and spring fire season and also contributing to this decrease has to be the mechanical wear and tear on our patrolling vehicles.

K. SUPPRESSION

The Bureau is mandated by law to assist rural fire communities in the suppression of wild fires. On many occasions during multi-alarm fires, our personnel not only assist in the suppression of wild fires but also will man fire stations to assist in dispatching fire information to other towns if the need arises.

Our fire tower detection system relays to the rural towns exact locations of fires detected which creates an immediate response situation to the emergency. This immediate response of fire apparatus to the scene minimizes the danger to lives and property.

The following fire statistics* reflect the important role the Bureau plays in the overall scope of detecting and suppression of wild fires in the Commonwealth. Without the Bureau's professional firefighting assistanct to the many cities and towns in the Commonwealth, the loss of valuable forest and timber products would be catastrophic. Other routine functions were also performed in conjunction with suppression activies.

*see following page

Fiscal 1986

Fires detected by towers	3,160
Fires Reported	6,162
Acres Burned	9,110.65
Miles Patrolled	498,325
Assists to Cities and Towns	1,680

Fire Classifications	Fires
A. .25 acres or less	3,639
B. .26 acres to 9.9 acres	2,420
C. 10 acres to 99.9 acres	96
D. 100 acres to 299.9 acres	6
E. 300 acres to 999.9 acres	-
F. 1000 acres to 4999.9 acres	1
G. 5000 acres or more	-
Total Class Fires	6,162

FIRE STATISTICS

PLANNING &
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Fires (Size by District)

July 1985 - June 1986

District	A	B	C	D	F	Total
1	234	31	3	1	1	270
2	709	159	8	-	-	876
3	367	446	13	1	-	827
4	412	286	8	1	-	707
5	396	73	11	-	-	480
6	153	289	8	-	-	450
7	108	163	10	-	-	281
8	481	213	3	2	-	699
9	169	61	3	1	-	234
10	168	176	8	-	-	352
11	310	202	6	-	-	520
12	55	202	9	-	-	266
14	75	119	6	-	-	200
Total	3639	2420	96	6	1	6162

Summary by Month

July 1985 - June 1986

Month	No. Fires	Acres	Cost
July	304	130.95	$ 35,093.00
August	137	83.90	12,369.00
September	98	24.55	4,684.95
October	392	288.35	31,661.59
November	111	71.40	7,064.25
December	21	9.50	939.75
January	139	111.55	5,822.50
February	60	30.10	2,482.00
March	1470	3193.00	161,542.78
April	2160	2944.50	169,011.81
May	1078	2105.50	98,048.70
June	192	117.35	10,956.25
Total	6162	9110.65	$539,676.58

Summary by Districts

July 1985 - June 1986

District	No. Fires	Acres	Cost
1	270	1749.50	$108,481.00
2	876	498.25	29,742.25
3	827	1045.25	53.949.50
4	707	1169.50	61,666.87
5	480	503.75	13,552.00
6	450	614.25	30,283.00
7	281	475	27,319.00
8	699	736.05	63,751.80
9	234	372.45	32,406.96
10	352	613	21,196.00
11	520	510.95	37,948.00
12	266	470.25	26,765.00
14	200	352.45	32,615.00
Total	6162	9110.65	$539,676.58

No. of Fires (Type of Area)

July 1985 - June 1986

Com. Forest	Non - Comm. Forest	Non - Forest	Nonforested Watershed	Total
983	3048	2038	93	6162

Acreage by Causes

July 1985 - June 1986

per	Smoker	Debris	Incendiary	Lightning	Misc.	Children	R.R.	Equip. Use	Total
6.70	363.45	1169.55	2901.30	.75	550.40	1472.05	605.50	1981.30	9110.65

Acres Burned (Type of Area)

July 1985 - June 1986

District	Comm. Forest	Non-Comm. Forest	Nonforested Watershed	Non-Forest	Total
1	2	1747	-	.50	1750.40
2	2	493.05	3.20	-	498.25
3	166.50	312	-	566.75	1045.25
4	692.25	254.25	64.25	113.75	1169.50
5	246.75	183	10.50	63.50	503.75
6	.25	562	-	52	614.25
7	324.25	36.25	-	114.50	475
8	298.10	149.80	7.75	280.40	736.05
9	323.90	48.55	-	-	372.45
10	255.75	222.75	28.75	105.75	613
11	359.40	44.90	.20	106.45	510.95
12	318.50	105	2	44.75	506.50
14	-	267.20	8.50	76.75	352.45
Total	3034.65	4425.75	125.15	1525.10	9110.65

Summary by Causes

July 19 85 - June 19 86

Dist.	Light	Camper	Smoker	Debris	Incend-iary	Equip. Use	R.R.	Child-ren	Misc.	Total
1	0	16	16	50	100	20	0	59	9	270
2	0	21	36	197	274	11	1	209	127	876
3	0	24	30	171	413	7	0	132	50	827
4	0	12	32	155	316	22	16	137	17	707
5	0	0	114	82	54	0	0	193	37	480
6	0	1	14	67	16	4	1	183	164	450
7	1	4	7	60	162	0	4	35	8	281
8	0	17	57	180	47	27	79	211	181	699
9	0	9	23	98	33	10	30	31	0	234
10	0	8	103	77	44	15	31	46	28	352
11	0	18	47	148	45	18	16	223	5	520
12	1	1	1	76	178	0	1	6	1	266
14	0	6	12	17	108	0	10	38	9	200
Total	2	128	492	1378	1790	134	189	1503	525	6162

Acreage by Districts

July 1985 - June 1986

District	A	B	C	D	E	Total
1	58.50	51	40	100	1500	1749.50
2	144.25	274	80	-	-	498.25
3	91.75	591.50	212	150	-	1045.25
4	113	577.50	339	150	-	1169.50
5	99	163.75	241	-	-	503.75
6	38.25	438	138	-	-	614.25
7	27	300	148	-	-	475
8	88.55	296.50	51	300	-	736.05
9	29.70	85.75	82	175	-	372.45
10	42.25	295.75	275	-	-	613
11	54.45	299.50	157	-	-	510.95
12	13.75	211.50	245	-	-	470.25
14	18.70	183.75	150	-	-	352.45
Total	809.15	3768.50	2158	875	1500	9110.65

PLANNING &
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WATER RESOURCES

WATERWAYS

DIVISION OF PLANNING AND DEVELOPMENT

ANNUAL REPORT FY'86

Robert F. Kumor, Jr., Deputy Commissioner

Introduction

Since FY'84 the Division of Planning and Development has been charged with administration of $127.5 million in new capital bond funds appropriated by the legislature for DEM to acquire new park land, improve existing facilities, and develop programs to encourage statewide open space preservation.

The Division continues in its traditional role of providing planning, engineering and landscape design services for the Department of Environmental Management, and works closely with the Division of Forests and Parks to acquire and develop new forest and park lands, and to plan for long-term land management needs.

In addition, the Division has worked closely with other state agencies and non-profit organizations to protect valuable open space by all possible means. Some important examples of this cooperation include Maudslay State Park in Newburyport, acquired with assistance from the Trust for Public Land, a national non-profit land trust. In North Hadley, the protection of a 215 acre parcel adjacent to and including Mt. Warner, important for its aquifer recharge value, archaeological significance, scenic amenities, and waterfront acreage, was accomplished by the Division's Connecticut Valley Action Plan with close cooperation from the Department of Food and Agriculture and the non-profit Kestrel Trust.

Planning and Development continues to administer a number of programs affecting non-Department lands, through grants and technical assistance to local communities. Some of these programs, such as the Heritage State Park program, the Olmsted Park Restoration program, the City and Town Commons program, and the Bay Circuit Greenbelt program, are the first of their kind in the nation. They are helping create a heightened public awareness of open space preservation issues in Massachusetts.

A. Operations

Jonathan M. Geer, Chief of Operations

The Bureau of Operations serves as the centralized administration for the Division of Planning and Development, the largest of any of the Department's Boston based Divisions. The Boston staff of the Division numbers more than 80 while the total staff including field operations is 115. Operations activities include:

Administration - Personnel management, office management, staff development.

Fiscal - Management of $140 million in capital bond acccounts, $130,000 in annual accounts, and federal and other special grants; preparation of Division's annual and capital budgets; administration of construction, design, appraisal, title examination, and survey contracts; administration of consultant contracts for planners, engineers, landscape architects, and attorneys; assistance to programs in administration of grants to cities and towns.

Special Projects - Computer planning, development of designer selection guidelines, development of a contract manual, and office policy and procedures manual.

FY'86 Major Accomplishments:

° The Operations staff processed 289 contracts (design, construction, appraisals, title exams, surveys, and individual consultant contracts) worth $8,121,380. (See appendix.)

° The Contracts Committee gained Administration and Finance approval of the DEM standard contract and contractor selection process, which provides increased accountability and streamlines the contract approval process.

° The Operations staff supervised installation of three computer systems:
  - Dedicated Wang Word Processing System;
  - Hewlett Packard Computer and Design System;
  - IBM PC for basic word processing and data base work.

  The staff also assisted in the EOEA Geographic Information System planning and began planning to use the Division of Capital Planning and Operations capital projects software.

° The preparation of the Division's FY'86 annual budget documents was coordinated through Operations.

° Two contract administrators were trained to help accomodate the new contract load.

B. Legal Affairs

Dolores Boogdanian, Chief Counsel

The **Legal Affairs/Land Acquisition** staff is responsible for carrying through all land acquisitions that have been reviewed and approved by the Natural Resource Planning and the Division of Forests and Parks staffs. This process includes issuance of contracts for appraisals, title examinations, surveys and engineering reports, negotiations with land owners, preparation and recording of all legal instruments.

In addition, the legal staff provides services for all the Division's programs, including drafting of agreements, legislation and disposition documents, contract review and administration, contract negotiations and construction contract dispute resolution.

FY'86 Major Accomplishments:

- The Division acquired 35 parcels of land totalling 1831 acres at a cost of $16,009,901.00. Approximately 60% of the total were additions to existing State Forest and Park land. Several major acquisitions were carried through to completion, including the 400+ acre Maudslay State Park in Newburyport, eleven miles of the Ware River Branch railroad bed, 43 acres of land in Brewster on Cape Cod Bay, and a major portion of the Blackstone Canal and adjacent tow path in Uxbridge.
- One hundred and five appraisals, title exams, and survey contracts were commissioned and awarded.
- The legal staff was expanded with 4 additional attorneys and a head administrative assistant.
- A cooperative effort with Natural Resource Planning staff established and implemented a "Land Acquisition Process."
- The legal staff completed the standardization of design, construction and consultant contracts.
- Approximately ten "Chapter 512" agreements were drafted and signed by various Heritage State Park cities and towns.

C. Engineering

John Cary, Chief Engineer

The Engineering staff is responsible for the development aspects of all capital projects, working closely with the designated project managers and the regional staff of the Division of Forests & Parks. Engineering oversees park restoration work, provides technical services, including engineering, landscape architecture and surveying, to the Department's projects, and coordinates with the Natural Resource Planning staff in planning for new park development.

FY'86 Major Accomplishments:

- A total of 19 construction contracts were awarded, totalling $2 million for work on projects such as:
  - Restoration of Ft. Phoenix State Park, Scusset Beach State Park, and Plymouth Rock State Park;
  - Fence and gate installation, statewide;
  - Parking lot construction at Ashland State Park;
  - Trail work at Harold Parker State Park; and
  - Rehabilitation of parks, statewide.
- Additionally, the Engineering staff provided support to other projects, including the Olmsted Program, the City and Town Commons Program, the Greylock Glen and Trail Program development.

D. Heritage State Parks

Christopher Greene, Chief Planner

This program is charged with the development of 12 new state parks in urban settings throughout Massachusetts. The objectives of these parks are threefold: 1) the creation of quality downtown open space; 2) the celebration of each community's cultural heritage; and 3) stimulus of private economic development. The first round of funding (1978-79) allocated $35 million for the establishment of parks in Lowell, Fall River, Lawrence, Lynn, Gardner, North Adams, Holyoke and Springfield. In 1983-84, $37.8 million was appropriated for parks in Roxbury, Dorchester/Milton Lower Mills, Turners Falls, and the towns along the the route of the old Blackstone Canal as well as for completion of the first eight parks.

FY'86 Major Accomplishments:

- Lowell - Unveiled workers statue and fountain in visitors center plaza; tranferred funds to City to implement new Park component adjacent to Massachusetts Mills; completed Lower Locks construction abutting Wang Training Center and new Lowell Hilton.
- Lawrence - Completed historic restoration of visitors center building; completed pilot curriculum development project integrating the Park with Lawrence public schools; River Walk design completed.
- Fall River - Completed street restoration at entrance to park; began design of Phase 2 and of Marine Museum facade.
- Holyoke - Construction began on Children's Museum project within Park; Lower Terrace designer selected.
- Lynn - Waterfront component opened; visitors center design was begun.
- Gardner - Supervised swimming program was begun at Dunn's Pond.
- North Adams - Park and visitors center with exhibits on Hoosac Tunnel opened; Phase 2 design was begun.

D. Heritage State Parks (cont.)

- Roxbury - Acquired state-owned portion of Nawn Factory (visitors center) from Division of Capital Planning and Operations; reached agreement with the City of Boston on lease of the 18th century Dillaway-Thomas House and began restoration design; completed landscape concept design for Park.

- Lower Mills - Began historic reconstruction on Pierce Square Plaza; began exhibit design; began Master Plan contract.

- Turner Falls: Began Master Plan.

- Blackstone - Acquired historic segment of Canal in Uxbridge; designed improvements for "Capron Park" component in Uxbridge; began remaining park site design. Blackstone, Worcester Component - Established Advisory Committee; selected consultants to refine feasibility of proposed project.

E. Office of Cultural and Historical Landscapes

1. Olmsted Historic Landscape Preservation Program

S. Christopher Scott, Program Director

Designated for $15 million of funding in the 1984 and 1985 capital outlay budgets, this program is the first statewide initiative in the nation to undertake restoration of parks designed by Frederick Law Olmsted.

Twelve Olmsted-designed parks -- Franklin Park, Jamaica Pond, Olmsted Park, the Riverway and the Back Bay Fens in Boston and Brookline; Lynn Woods and High Rock Reservation in Lynn; D.W. Field Park in Brockton; Kennedy Park in Fall River; Buttonwood Park in New Bedford; Forest Park in Springfield; and Elm Park in Worcester -- have been selected for historical research, comprehensive master planning, design and rehabilitation.

FY'86 Major Accomplishments:

- Completed Phase 1 and 2 of Reconnaissance Archaeological Surveys and Historic Landscape Reports.
- Awarded eight Master Planning contracts to multi-disciplinary design firms, and initiated inventory, analysis and preparation of alternatives for rehabilitation projects.
- Developed and executed Program Grants Agreements with each community.
- Initiated Early Action construction project planning for each of the parks.
- Conducted historic landscape preservation workshops attended by each consultant and community representatives and sponsored preservation lectures at the Museum of Fine Arts.
- Continued to meet regularly with both the Statewide Advisory Committee and in each city with the local Advisory Committee.

2. City and Town Commons Program

Willa Small Kuh, Program Director

The City and Town Commons Program is a $ 7 million state grant initiative enabling communities to acquire and restore commons and squares of outstanding natural beauty and/or cultural significance. Funds have been allocated to communities of high economic need where administration of the Program will be done in coordination with other public and private investments, all intended to preserve the character of the community.

FY'86 Major Accomplishments:

- Completed 2 of 3 acquisition projects. Designed and constructed the remaining acquisition project.
- 17 of 19 rehabilitation projects substantially designed.
- 5 of 19 rehabilitation projects under construction.
- Published grants administrative manual, construction manual, and local exhibit design guidelines manual.
- Displayed program exhibit in ten communities.
- Prepared program slide show.
- Sponsored public lecture series on historic landscape preservation.

3. Cultural Resource Program

Gail Temple, Program Director

This program provides comprehensive management of the identification, evaluation, protection and interpretation of the historic, archaeological, architectural and cultural resources within DEM's forests and parks.

FY'86 Major Accomplishments:

- A three-volume Cultural Resource Management Recommendations report was completed and distributed to Department staff.
- Program staff initiated a process to integrate cultural resource management issues into GOALS management planning, comprehensive resource inventories, acquisition planning, property management and interpretive services.
- Staff in each region were designated Regional Cultural Resource Technicians, to coordinate cultural resource management issues at the regional level.

F. Long Wharf

Catherine Barner, Program Director

DEM is working with the Boston Redevelopment Authority to restore historic Long Wharf on Boston Harbor. When completed it will be a working wharf providing access to the Boston Harbor Islands State Park and serving as the harbor's recreational boating center. Seven million dollars was authorized for this project in the 1984 capital outlay. It will provide for infrastructure repair and development of a visitor center to provide scheduling and program information for the Harbor Islands and the state park system.

FY'86 Major Accomplishments:

- Throughout FY'86 workshops were sponsored to involve public agencies, organizations, and private citizens in the development process.
- Schematic design for the wharf was completed, and the landscape design contract was initiated.
- Long-term management planning began.
- Environmental permitting processes were initiated.

G. Schooner Ernestina

S. Christopher Scott, Project Director

The Schooner Ernestina is the last existing Fredonia style Gloucester Schooner. She was built in 1894 and plied the water off George's Bank as a commercial fishing vessel for 30 years before being outfitted as an Arctic explorer. She sailed to the Arctic numerous times in the next 20 years. She was repatriated to the United States in 1982, and given to the Commonwealth by the Republic of Cape Verde. In cooperation with the Schooner Ernestina Commission, DEM has undertaken a complete restoration of this historic ship for use as a sail training vessel.

FY'86 Major Accomplishments:

- Through the intensive efforts of Captain Daniel Moreland and his crew, the entire capital authorization of $200,000 was expended during FY'86 and the Schooner was restored to sailing condition. Major rehabilitation included repairs to the decks, fore and aft cabins, replacement of spars, rigging and sails, and the installation of ballast and an engine.

H. Dam Safety

Mark Cullinan, Director

The program is mandated under Chapter 253, sections 44-47 of the M.G.L. to inspect and supervise the repair and construction of all 1700 dams in the Commonwealth. The Program is currently staffed with five (5)engineers and operates from its Lancaster Office.

FY'86 Major Accomplishments:

- Prepared new dam safety legislation.
- Prepared new dam safety rules and regulations.
- Developed a dam owners' manual of safe operations, inspection, and maintenance of dams.
- Prepared new dam inspection forms.
- Developed and catalogued a new computerized dam inventory.
- Obtained $5 million for dam rehabilitation study and evaluation.
- Obtained five (5) new state engineer positions for the Program.
- Effectively increased the program's annual operating budget.

I. Bay Circuit Greenbelt Program

Susan Ziegler, Program Director

The Bay Circuit Greenbelt is a local and regional land protection initiative to create a 100-mile system of parks and open spaces, linked by various roads, trails and waterways, in 50 cities and towns surrounding metropolitan Boston. The program works extensively with representatives of Bay Circuit communities in order to encourage local involvement in planning and implementing this park system. The program includes land acquisition, planning grants and technical assistance to cities and towns as mandated by Chapter 631 of the Acts of 1956.

FY'86 Major Accomplishments:

- Developed policies and objectives with Governor's Advisory Committee.
- Established 7 Regional Committees of local representatives of all Bay Circuit communities, and met with them regularly.
- Developed mapped inventory of important resources and protected land.
- Provided assistance to communities for protecting specific sites threatened by development.
- Acquired 390 acres of land in Marlboro and Framingham, adjacent to Callahan State Park.
- Developed program for awarding $125,000 in planning grants to local communities.

J. Natural Resource Planning

Katherine Abbott, Director

Natural Resource Planning is responsible for conservation and recreational development planning for the Commonwealth's natural resources, including the state forest and park system. The GOALS Program (Guidelines for Operations and Land Stewardship) addresses these issues for the Department's properties in the context of the Statewide Comprehensive Outdoor Recreation Plan (SCORP). SCORP planning forms the basis for state, city, and town policy relating to land acquisition and facility development for recreation. All DEM land acquisition planning is handled by the Natural Resource Planning staff.

Programs have been developed within Natural Resource Planning which focus on specific resources and their conservation and recreation values. The Coastal Access Planning Program seeks to acquire and protect coastal lands and improve recreational access. The Scenic Rivers Program designates Scenic Rivers, encourages local river planning, administers grants, and supports reclaimation of urban rivers. The Trails Program pursues improved planning and management of all trails and the implementation of a statewide long distance pedestrian trail system.

1. Land Acquisition Planning

The land acquisition planning staff identifies, reviews and makes recommendations for additions to the Commonwealth's Forests and Parks system. The planning staff carries out concept planning for new parks and coordinates planning and acquisition of inholdings (lands lying adjacent to or within existing facilities).

FY'86 Major Accomplishments:

- Began master planning for the newly acquired Maudslay State Park.
- Set long term acquisition boundaries for all of DEM's forests and parks.
- In coordination with other programs within Planning and Development and the Division of Forests and Parks, initiated planning for an acquisition strategy for new DEM facilities.
- A draft land acquisition policy, process and evaluation form were prepared for intra-agency review.

2. Scenic Rivers Program

The program was established to protect the unique environment that makes a river or stream an outstanding resource. The program seeks to protect the river systems by monitoring construction and hydro development proposals; by awarding planning grants to local watershed councils or regional planning commissions to develop management/greenway plans for specific rivers; and by offering technical assistance to communities for developing effective river corridor protection strategies such as zoning by-laws, the establishment of river districts or donated conservation easements.

FY'86 Major Accomplishments:

- During FY'86 the Program, in coordination with the Division of Fisheries, Wildlife and Environmental Law Enforcement, undertook contracts to implement the management plan recommendations for the Charles, Stillwater and Westfield Rivers.
- Program staff coordinated the American Rivers Conservation Council's national calendar of events celebrating the fifth annual American Rivers Month. Activities were held in over 40 states.
- The Hoosic River Action Plan was initiated with the Berkshire County Regional Planning Commission to develop ecological protection strategies and recreational access on the North branch and main stem of the Hoosic River.
- The Program established a coordinating committee of EOEA agencies to serve as an information exchange and policy advisory group on river conservation issues.

3. Trails Program

The program staff investigates trail opportunities and chooses optimum routes for acquisition and construction with the assistance of the Statewide Trails Committee and others. The program provides comprehensive statewide trails planning, technical assistance to communities, design of DEM bike trails to be constructed with DPW funds, and recommends improvements to existing forest & park trails.

FY'86 Major Accomplishments:

- Trail planning for the northern sector of the Midstate Trail, from the New Hampshire line to Mt. Wachusett, was completed. Northern terminus acquisition and the trailhead parking project progressed, as did the acquisition of parcels and easements for the trail corridor and the trail guide book.

- Recreation planning was completed and acquisition process initiated for key parcels on Mt. Watatic, including the now defunct ski area.

- In cooperation with the Division of Forests and Parks a new program to recruit and train volunteers to maintain trails on DEM properties was designed.

- A pilot study of master planning methodology using Wendell State Forest was completed with the University of Massachusetts. The study investigated trail planning as a way to enhance public access, and the integration of long distance trails into a park day-use trail system.

- Awarded the design contract for the extension of the Cape Cod Rail Trail into Wellfleet.

- Acquisition process was initiated on the Hollis Branch, several parcels in Harwich adjacent to the Cape Cod Rail Trail, and a parcel in Blackstone between the New England Trunk Trail and the Blackstone River.

4. Coastal Access Planning Program

The Coastal Access Planning Program is designed to identify and acquire sites along the coast for active and passive recreation, and for preservation of scenic beauty and ecological significance. The Program seeks to acquire and protect coastal lands and improve recreational access primarily through acquisition but also through technical assistance to communities, cooperative projects, resource protection plans, and the development of the State's only Estuarine Reserve.

FY'86 Major Accomplishments:

- Program staff worked to acquire 63 acres of coastal property on Cape Cod, at a cost of $3,166,000, for the provision of recreation opportunities. The acquisitions included the establishment of a new coastal beach in Brewster and an important addition to Nickerson State Park.

- The program also participated in a cooperative effort with the Department of Food and Agriculture and the Audubon Society to protect a 150 acre coastal farm on Buzzards Bay, for scenic enjoyment and passive recreation.

5. Connecticut Valley Action Plan

Cooperation among the Department of Environmental Management, the National Park Service and the Connecticut River Watershed Council continued in FY'86 through DEM's Connecticut Valley Action Plan, to develop an integrated program of significant long-term protection and wise use of the Connecticut River and its related land resources. The program area encompasses the 68 miles of the river in Massachusetts and the 19 cities and towns which border it, an area of approximately 800 square miles.

FY'86 Major Accomplishments:

° Initiated new acquisition activities on 8 river corridor land tracts totalling 706 acres. Two earlier projects totalling 226 acres were completed.

° Completed a Task Force report concerning establishmennt of a riverfront park in Northampton near Coolidge Bridge, and sought development funds for it.

° Formed a new private advance-acquisition group called Valley Land Fund, which in its first project secured a 50 acre tract of prime scenic agricultural land with a half mile of Connecticut River frontage.

° In cooperation with the Division of Waterways the first phase of a river channel marking project was completed. Also initiated a 5-community waterways commission to work on river safety and use issues. Cooperated with the Environmental Police to secure increased river related law enforcement.

° Published, in concert with the National Park Service, a zoning review of the 19 river communities and distributed a 24"x30" poster of the Action Program items.

6. G.O.A.L.S
(Guidelines for Operations and Land Stewardship)

G.O.A.L.S is the long-range management planning program for the Department's Forest & Park system. G.O.A.L.S. plans provide guidelines for future management, use, protection, and expansion of the forests and parks. Plans are developed by teams composed of staff from the Division of Planning and Development and the Division of Forests and Parks. Public participation is generated through citizen advisory groups and public meetings.

FY'86 Major Accomplishments:

- Two G.O.A.L.S plans were completed, one for Wachusett Mountain State Reservation in Region 3, and one for Harold Parker State Forest in Region 2.
- Final draft plans for Myles Standish State Forest in Region 1 and D.A.R. State Forest in Region 4 were printed and distributed for review at public meetings.
- Draft texts were completed for G.O.A.L.S. plans at Mt. Greylock State Reservation and Holyoke Range State Park.
- Planning continued for other DEM properties including: Wendell State Forest, J. Harry Rich State Forest, Wompatuck State Park, Moore State Park, and Pittsfield State Forest.
- The two completed G.O.A.L.S plans were officially adopted and approved by the Board of Environmental Management. These plans were distributed to state legislators, advisory groups, the Massachusetts Rural Caucus and are on file at the Secretary of State's Office.

7. S.C.O.R.P.
(Statewide Comprehensive Outdoor Recreation Plan)

SCORP is a program designed to promote, protect, and preserve statewide outdoor recreation availability including the physical and programmatic demand.

FY'86 Major Accomplishments:

- Annual Report for 1985 was accepted.
- The 1985 Regional Recreation Inventory Account was closed.
- The Action Plan was revised.
- The contract for the 1988 SCORP was awarded.

K. Boston Harbor Islands

Eric Buehrens, Project Planner

The Boston Harbor Projects Planner serves as a liaison to federal, state, and city agencies involved with projects in and around Boston Harbor, and coordinates long-range planning for the Boston Harbor Islands State Park.

FY'86 Major Accomplishments:

- The Boston Harbor Islands State Park Master Plan was officially released by Governor Dukakis. The plan is the result of several years of work, and calls for $10 million in improvements to the park.

L. Greylock Glen

Richard Lockhart, Project Manager

Greylock Glen is a year-round public recreation resort being developed by the Commonwealth with the private sector. The 1000-acre site is adjacent to Mt. Greylock State Reservation on the eastern slope of the Mountain. The project began in February, 1985 with the completion of a project concept plan and the publication of a development prospectus incorporating that plan.

In FY'86 legislation authorizing the project and appropriating 8.5 million dollars for development was enacted, Chapter 676 of the Acts of 1985.

FY'86 Major Accomplishments:

- Contracted with Stone and Webster Engineering Corp. for extensive studies on technical feasibility and environmental impact.
- Completed project boundary surveys.
- Issued Request for Expressions of Interest.
- Completed a site development master plan.
- Negotiated draft development rights agreements with abutting farm owners.
- Completed preliminary market studies.
- Conducted a developer recruitment program.
- Property appraisals and title exams completed and draft reports prepared.
- Issued Requests for Proposals.

SUMMARY

DIVISION OF PLANNING & DEVELOPMENT - FISCAL YEAR - 1986

CONSTRUCTION AND 03 CONSULTANT CONTRACTS

TITLE OF EACH CATEGORY		NUMBER OF CONTRACTS OF EACH CATEGORY		TOTAL DOLLAR VALUE OF EACH CATEGORY
Appraiser (162 parcels)		56		$248,985
Title Examiner (144 parcels)		34		77,434
Design		25		2,809,828
Surveys (10 parcels)		5		53,125
Construction		19		1,702,008
Other 03 dependent & independent Consultant Contracts		150		3,230,000
TOTALS	CONTRACTS	289	COST	8,121,380

LAND ACQUISITION

NUMBER OF PARCELS	AMOUNT OF ACREAGE	TOTAL COST OF PARCELS
35	1,831.34	16,009,901

GRAND TOTAL

$24,131,281

DO/vc

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
1	Ft. Phoenix State Reservation	209-85	Capeway Roofing. Westport MA. INC	. 14,390.	May 1, 1985	Roof repairs
1	Scusset Beach State Reservation	149-84	East Coast Marine Corp. East Dennis, MA	66,900.	Sept.11, 1985	Steel Dolphin and Wooten Pile Construction
1	Boston Harbor Islands State Park	183-85	Bay State Contracting Co. Pembroke, MA	79,330.	August 7, 1985	Roof replacement Headquarters Building
	Statewide	234-85	Expert Fence Corp.	133,800.	July 19, 1985	Steel pipe single and double leaf gate installation
1	Plymouth Rock State Park	177-85	Great Eastern Marine Service Gloucester, MA	13,835.	Dec. 19, 1985	Plymouth State pier repair work
	Ft. Phoenix State Reservation	277-85	Sherry Construction Swansea, MA	200,112.	April 8, 1985	General Improvements

Construction

[illegible]	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
[illegible]	Salisbury State Reservation	N/A	Cable Splicing and Testing, Reating, MA.	37,615. 615.	8/26/85	Electrical rewiring to correct lighting-induced damage
[illegible]	Harold Parker S.F.	N/A	Labor Force Account	15,000.		Loop Trail Construction
[illegible]	Halibut Point State Park	255-85	Duncan Tree and Landscape Constr.	2,300.		Tree and Vegetation Clearing
[illegible]	Ashland State Park	257-85	Middlesex Paving Inc.	238,971.		Parking Lot Construction
[illegible]	Lawrence H.S.P.	277-85	Charles Maltbie Assoc.	329,950.	Jan 31, 1986	Visitors Center Exhibit Fabrication
[illegible]	Willard Brook S.P.	265-85	Merrimack Valley Mechanical	7,285.	Dec. 2 1985	Heating System replacement at Last Resort House
[illegible]	Salisbury State [illegible]	284-85	P. Caliacco Corp. Quincy MA.	170,393.	March 24, 1986	Replacement of electrical Cable

Construction

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
	Salibury State Park	285-86	Gaffny Corp. Middleton, MA	119,000.	March 25, 1986	Rehabilitation of comfort stations stations
	Salisbury State Park	N/A	Labor Force Account	1,200.	May 5, 1986	Beach Wall Construction
	Gardner Heritage State Park	262-85	Sunborn Wood Products, Winchendon, Springs MA.	100,761.	Oct. 2, 1985	Visitors' Center Exhibit Fabrication
	Brimfield State Forest	235-85	Independent Roofing Co. - Westfield, MA.	48,040.	July 10, 1985	Reroofing work at Hampton Ponds State Park and Brimfield State Forest
	Western Gateway Heritage State Park	254-85	Design & Production Inc. Alexandria, VA.	114,511.	April 1, 1986	Visitors' Centers' Exhibit Fabrication
	[illegible] Site		Labor Force Account	8,000.		

DESIGN

[illegible]	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		FISCAL YEAR SCOPE OF WORK
1	Myles Standish State Park	220-85	Kennand Kenny Cataumet, MA.	14,000.		Design of new fire and observation tower
1	Roxbury Heritage State Park	247-85	Museum of African American History, Boston, MA	100,148.		Archaeological Reconaissance Survey
	Statewide		to be selected	39,000.		Enginerring Services Relative to dam safety inspections
1	Franklin Park	246 85	Halvorson Company Boston, MA	122,500.		Master Planning/Design Services
1	Emerald Necklace	247 85	Walmsley/Presley	363,500.		Master Planning/Design
1	D.W. Field Park Brockton MA.	248 85	Chilt Assoc. Cambridg MA.	122,500.		Planning and design of landscape improvements
1	Kennedy Park Fall River	249 85	Albert Veriand Associates	122,500.		Planning and design of landscape improvements

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		SCOPE OF WORK
1	Buttonwood Park New Bedford	251 85	Walker Design Group. Belmont	155,000.		Planning and design of landscape improvements
[illegible]	Nickerson State Park Brewster	170 85	Coffin and Richardson, Charlestown MA.	34,950.		Design of water system improvements
[illegible]	Roxbury H.S.P.	283 85	Boston Survey Consultants, Boston MA	22,730.		Land Survey
1	Salisbury State Park	237 85	Leonard S. Phillips; Boston, MA	25,000.		Schematic, preliminary and final design services for electrical system upgrade
[illegible]	Lowell H.S.P.	261 85	Barnes & Jarnis Inc. Boston, MA	39,900.		Engineering expertise to assist in the completion of new siphon construction
	Lynn H S.P.	271 85	Lillid Marvin Rosenberg Newton, MA	39,000.		Mural design and fabrication
[illegible]	Halibut Point S.P.	293- 86	Mediawrights Boston MA	12,100.		Interpretive video production

DESIGN

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
[illegible]	Lynn Woods & High Rock	250 85	Bruce Kelley Associates	172,000.		Master planning and design as well as construction supervision services
3	Blackstone H.S.P.	200-85	Scape Unlimited, Sprindfield, MA.	348,945.		Services relating to final design and construction
3	Elm Park Worcester	253 85	Rudy Fauretti Associates	125,000.		Master planning/designer services
[illegible]	Blackstone H.S.P.	286 85	Blackstone Valley Chamber of Commerce	60,000.		Planning and economic impact analysis
	Forest Park Springfield	252 85	Johannes Wagner Ashland, MA.	130,000		Master planner/designer services
	Western Gate-way H.S.P.	[illegible]-85	Design and Production, Inc. Alexandria, VA	114,511.		Visitors' Center exhibit design
	[illegible]	259-85	Berkshire County Regional Planning Commission, Pittsfield, MA	30,000.		Long Range conservation, recreation plan [illegible] Hoosic River

DESIGN

FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		SCOPE OF WORK
Mt. Greylock State Reservation/ Greylock Glen	224-85	Stone & Webster Boston, MA.	328,904.		Development feasibility and implementation strategy for four-season recreation area
Mt. Greylock State Reservation	199-85	Almer Huntley Jr. & Assoc. Northampton, MA.	90,540.		Access road improvement design
Mt. Greylock State Reservation		Lewis Cuyler North Adams MA	8,000.		Slide/tape show for presentation to prespecti developers Greylock Glen
Statewide		BU UMass Amherst P.A.L. - Prov RI	189,100.		Archaeological recomm. assessment

BUDGET 2120-0300

FY 1986

SUBSIDIARY ACCOUNTS		DOLLARS
01	Salaries Permenant Positions	$ 2,486,788
02	Salaries Other	10,471,595
03	Services Non-Employees	93,129
04	Food for Persons	0
05	Clothing	30,700
06	Housekeeping Supplies and Expenses	55,000
07	Laboratory and Medical Supplies and Expenses	77,000
08	Heating and Plant Operation	1,789,430
09	Farm and Grounds	27,500
10	Travel and Automotive Expenses	212,007
11	Advertising and Printing	32,000
12	Maintainance - Repairs, Replacements and Alterations	675,000
*12	Ames Knowell Rehab Project (Trans from 13)	30,000
	12 acct. total	705,000
13	Special Supplies and Expenses	41,126
	* Approp. 71,126 (30,000 ro 12 acct. Ames Knowell Project)	
**13	Unemployment Insurance Costs	201,366
	13 acct. total	242,492
14	Office and Administrative Expenses	16,508
15	Equipment	165,320
16	Rentals	73,000
	TOTAL =	16,477,469

* Included in 13 Acct. Appropriation for Special Ames Knowell Project

** Transfer to 13 Acct. from 01 and 02 Appropriation to cover special expense of unempolyment costs.

ACQUISITION & CONSTRUCTION

FISCAL YEAR - 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

CATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
inceton	Leominster S.F.	Alden G. Beaman	4/18/86	10 A	45,000.
uglas	Douglas S.F.	Harry, Mary & Michael Bedoian	4/18/86	113 A	50,850.
dover	Reforestation Lot	Commonwealth of Mass.	5/1/86	- 37.8 A	Exchange (Disposition)
wburyport	Moseley Estate	Garabed Dargoonian (¼ Interest)	5/12/86	--	Exchange (40,000.)
wburyport	Moseley Estate	Trust For Public Land (3/4 Interest)	5/12/86	3.259 A	120,000.
stfield	Hampton Ponds	Leonhard & Mary Claire Demelbauer	5/29/86	10,000 S.F.	65,000.
hburnham	Ashburnham S.F.	Cyril M. Brehio	6/2/86	38 A	10,000.
dley	Mt. Warner (Conn. River) (Conservation Restriction)	Jessie S. Agassiz	6/12/86	(159.29 A)	75,000.
anville	Granville S.P.	John W. & Herbert J. Bahre	6/20/86	126 A	135,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

OCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
ouglas	Douglas S.F.	Angelo V. Vecchione	12/30/85	71 A	94,000.
ouglas	Douglas S.F.	Wallum Lake Terrace Inc.	12/30/85	7 A	265,000.
arre, Hubbardston hillipston, empleton	Rail Trail	Penn Central Corporation	12/30/85	128.35 A (15.25mi.)	122,000.
oxborough	F. Gilbert Hills S.F.	Mary Esther Bryant	12/31/85	1.23 A	58,000.
oxborough	F. Gilbert Hills S.F.	William E. Barton Corporation	12/31/85	2. A	Gift
oxborough	F. Gilbert Hills S.F.	William E. Barton Corporation	12/31/85	138 A	1,141,551.
ancock	Pittsfield S.F.	Frank & Gertrude Hornyak	1/7/86	115 A	50,000.
rewster	Nickerson S.P.	John A. Spargo	1/8/86	19.3 A	1,565,000.
rewster	Nickerson S.P.	Brewster Dunnes II Cooperative Rec. Housing, Inc.	1/24/86	26.6 A	1,000,000.
rewster	Nickerson S.P.	Commonwealth of Mass.	1/24/86	--	Easement
rewster	Nickerson S.P.	Rebecca H. Whiting Trustee Keeler Pond Trust	2/10/86	19.6 A	275,000.
lainfield	Hawley S.P. (Dewey Lot)	Trust For Public Land	3/13/86	60 A	48,000.
xbridge	Blackstone River & [illegible]	Stanley Woolen Company	4/7/86	35 A	235,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

OCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
owell	Lowell - Dracut & Tyngsboro S.F.	Grace M. Dean & Deborah D. Ayotte	7/3/85	6.7 A	$140,000.
ittsfield	Pittsfield S.F.	Edward & Dorothy L. Krutiak	7/5/85	100. A	65,000.
ingham	Boston Harbor Islands	D.E.Q.E.	7/16/85	--	License Pier
estport	Horseneck Beach	Westport Conservation Commission	8/2/85	--	Order of Conditions
ewburyport	Moseley Estate	Trust For Public Land	8/5/85	413 A	4,600,000.
ewburyport	Moseley Estate	Trust For Public Land	8/5/85	3 A	200,000.
arlborough	Bay Circuit	Eugene & Katherine O'Donnell	8/16/85	235 A	4,000,000.
ouglas	Douglas S.F.	Burton E. Carter	9/11/85	14.67 A	40,000.
haron	Borderland S.P.	Robert & Ethel Morse	9/18/85	177 A	1,200,000.
ouglas	Douglas S.F.	Douglas & Marione Smith	10/21/85	22,000 S.F.	22,000.
rewster	Nickerson S.P.	John & Anne Droescher	10/31/85	14,850 S.F.	176,000.
axton	Moore S.P.	Charles F. Brady	11/13/85	5.3 A	22,500.
artmouth	(Horseneck Beach) Conservation Restriction	Yacubian & Wright	12/27/85	(76. A)	150,000.

SUMMARY

OFFICE OF PLANNING & DEVELOPMENT - FISCAL YEAR - 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

CATEGORY	No. of PARCELS	Ave. COST per PARCEL	No. of CONTRACTS	TOTAL DOLLAR AMOUNT of each CATEGORY
APPRAISERS	162	$1,537.50	56	$248,985.00
TITLE EXAMINERS	144	$ 537.50	34	$ 77,434.00
SURVEYS	10	$5,312.50	5	$ 53,125.00

LAND ACQUIRED in FISCAL YEAR 1986

NUMBER of PARCELS	AMOUNT OF ACREAGE	TOTAL COST of PARCELS ACQUIRED
35	1,831.34 A	$16,009,901.00

Note: Amount of funds needed for the appraisals and title exams in order to acquire the above parcels during Fiscal Year 1986 was: Two Percent (2%)

Submitted by: John Lenkiewicz
Assisted by: Joseph Walsh
(See Attached)

SUMMARY

DIVISION OF PLANNING & DEVELOPMENT - FISCAL YEAR - 1986

CONSTRUCTION AND 03 CONSULTANT CONTRACTS

TITLE OF EACH CATEGORY		NUMBER OF CONTRACTS OF EACH CATEGORY		TOTAL DOLLAR VALUE OF EACH CATEGORY
Appraiser (162 parcels)		56		$248,985
Title Examiner (144 parcels)		34		77,434
Design		25		2,809,828
Surveys (10 parcels)		5		53,125
Construction		19		1,702,008
Other 03 dependent & independent Consultant Contracts		150		3,230,000
TOTALS	CONTRACTS	289	COST	8,121,380

LAND ACQUISITION

NUMBER OF PARCELS	AMOUNT OF ACREAGE	TOTAL COST OF PARCELS
35	1,831.34	16,009,901
		GRAND TOTAL
		$24,131,281

DO/vc

CONSTRUCTION

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
1	Ft. Phoenix State Reservation	209-85	Capeway Roofing. Westport MA. INC	14,390.	May 1, 1985	Roof repairs
1	Scusset Beach State Reservation	149-84	East Coast Marine Corp. East Dennis, MA	66,900.	Sept. 11, 1985	Steel Dolphin and Wooten Pile Construction
1	Boston Harbor Islands State Park	183-85	Bay State Contracting Co. Pembroke, MA	79,330.	August 7, 1985	Roof replacement Headquarters Building
	Statewide	234-85	Expert Fence Corp.	133,800.	July 19, 1985	Steel pipe single and double leaf gate installation
1	Plymouth Rock State Park	177-85	Great Eastern Marine Service Gloucester, MA	13,835.	Dec. 19, 1985	Plymouth State pier repair work
	Ft. Phoenix State Reservation	277-85	Sherry Construction Swansea, MA	200,112.	April 8, 1985	General Improvements

Construction

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
2	Salisbury State Reservation	N/A	Cable Splicing and Testing, Reading, MA.	37,615. 615.	8/26/85	Electrical rewiring to correct lighting-induced damage
2	Harold Parker S.F.	N/A	Labor Force Account	15,000.		Loop Trail Construction
[illegible]	Halibut Point State Park	255-85	Duncan Tree and Landscape Constr.	2,300.		Tree and Vegetation Clearing
2	Ashland State Park	257-85	Middlesex Paving Inc.	238,971.		Parking Lot Construction
[illegible]	Lawrence H.S.P.	277-85	Charles Maltbie Assoc.	329,950.	Jan 31, 1986	Visitors Center Exhibit Fabrication
[illegible]	Willard Brook S.P.	265-85	Merrimack Valley Mechanical	7,285.	Dec. 2 1985	Heating System replacement at Last Resort House
[illegible]	Salisbury State Park	284-86	P. Caliacco Corp. Quincy MA.	170,393.	March 24, 1986	Replacement of electrical Cable

Construction

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
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	Salisbury State Park	N/A	Labor Force Account	1,200.	May 5, 1986	Beach Wall Construction
	Gardner Heritage State Park	262-85	Sunborn Wood Products, Winchendon, Springs MA.	100,761.	Oct. 2, 1985	Visitors' Center Exhibit Fabrication
	Brimfield State Forest	235-85	Independent Roofing Co. - Westfield, MA.	48,040.	July 10, 1985	Reroofing work at Hampton Ponds State Park and Brimfield State Forest
	Western Gateway Heritage State Park	254-85	Design & Production Inc. Alexandria, VA.	114,511.	April 1, 1986	Visitors' Centers' Exhibit Fabrication
	Ashmere Lake Dam Site		Labor Force Account	8,000.		

DESIGN

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		SCOPE OF WORK FISCAL YEAR
1	Myles Standish State Park	220-85	Kennand Kenny Cataumet, MA.	14,000.		Design of new fire and observation tower
1	Roxbury Heritage State Park	247-85	Museum of African American History, Boston, MA	100,148.		Archaeological Reconaissance Survey
	Statewide		to be selected	39,000.		Enginerring Services Relative to dam safety inspections
1	Franklin Park	246 85	Halvorson Company Boston, MA	122,500.		Master Planning/Design Services
1	Emerald Necklace	247 85	Walmsley/Presley	363,500.		Master Planning/Design
1	D.W. Field Park Brockton MA.	248 85	Chilt Assoc. Cambridg MA.	122,500.		Planning and design of landscape improvements
1	Kennedy Park Fall River	249 85	Albert Veriand Associates	122,500.		Planning and design of landscape improvements

WATERWAYS

WATER RESOURCES

DESIGN

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		SCOPE OF WORK
1	Buttonwood Park New Bedford	251 85	Walker Design Group. Belmont	155,000.		Planning and design of landscape improvements
1	Nickerson State Park Brewster	170 85	Coffin and Richardson, Charlestown MA.	34,950.		Design of water system improvements
1	Roxbury H.S.P.	283 85	Boston Survey Consultants, Boston MA	22,730.		Land Survey
1	Salisbury State Park	237 85	Leonard S. Phillips, Boston, MA	25,000.		Schematic, preliminary and final design services for electrical system upgrade
4	Lowell H.S.P.	261 85	Barnes & Jarnis Inc. Boston, MA	39,900.		Engineering expertise to assist in the completion of new siphon construction
4	Lynn H.S.P.	271 85	Lillid Marvin Rosenberg Newton, MA	39,000.		Mural design and fabrication
4	Halibut Point S.P.	293-86	Mediawrights Boston MA	12,100.		Interpretive video production

DESIGN

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
4	Lynn Woods & High Rock	250 85	Bruce Kelley Associates	172,000.		Master planning and design as well as construction supervision services
5	Blackstone H.S.P.	200- 85	Scape Unlimited, Sprindfield, MA.	348,945.		Services relating to final design and construction
3	Elm Park Worcester	253 85	Rudy Fauretti Associates	125,000.		Master planning/designer services
5	Blackstone H.S.P.	286 85	Blackstone Valley Chamber of Commerce	60,000.		Planning and economic impact analysis
[illegible]	Forest Park Springfield	252 85	Johannes Wagner Ashland, MA.	130,000		Master planner/designer services
[illegible]	Western Gate- way H.S.P.	254- 85	Design and Produc- tion, Inc. Alexandria, VA	114,511.		Visitors' Center exhibit design
[illegible]	[illegible]	259- 85	Berkshire County Regional Planning Commission, Pittsfield, MA	30,000.		Long Range conservation, recreation plan for Hoosic River

DESIGN

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT		SCOPE OF WORK
[illegible]	Mt. Greylock State Reservation/ Greylock Glen	224-85	Stone & Webster Boston, MA.	328,904.		Development feasibility and implementation strategy for four-season recreation area
5	Mt. Greylock State Reservation	199-85	Almer Huntley Jr. & Assoc. Northampton, MA.	90,540.		Access road improvement design
5	Mt. Greylock State Reservation		Lewis Cuyler North Adams MA	8,000.		Slide/tape show for presentation to prospecti developers Greylock Glen
	Statewide		BU UMass Amherst P.A.L. - Prov RI	189,100.		Archaeological recomm. assessment

ACQUISITION & CONSTRUCTION

FISCAL YEAR - 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

ATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
nceton	Leominster S.F.	Alden G. Beaman	4/18/86	10 A	45,000.
glas	Douglas S.F.	Harry, Mary & Michael Bedoian	4/18/86	113 A	50,850.
over	Reforestation Lot	Commonwealth of Mass.	5/1/86	- 37.8 A	Exchange (Disposition)
buryport	Moseley Estate	Garabed Dargoonian (¼ Interest)	5/12/86	--	Exchange (40,000.)
buryport	Moseley Estate	Trust For Public Land (3/4 Interest)	5/12/86	3.259 A	120,000.
tfield	Hampton Ponds	Leonhard & Mary Claire Demelbauer	5/29/86	10,000 S.F.	65,000.
burnham	Ashburnham S.F.	Cyril M. Brehio	6/2/86	38 A	10,000.
ley	Mt. Warner (Conn. River) (Conservation Restriction)	Jessie S. Agassiz	6/12/86	(159.29 A)	75,000.
nville	Granville S.P.	John W. & Herbert J. Bahre	6/20/86	126 A	135,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

CATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
uglas	Douglas S.F.	Angelo V. Vecchione	12/30/85	71 A	94,000.
uglas	Douglas S.F.	Wallum Lake Terrace Inc.	12/30/85	7 A	265,000.
rre, Hubbardston illipston, mpleton	Rail Trail	Penn Central Corporation	12/30/85	128.35 A (15.25mi.)	122,000.
xborough	F. Gilbert Hills S.F.	Mary Esther Bryant	12/31/85	1.23 A	58,000.
xborough	F. Gilbert Hills S.F.	William E. Barton Corporation	12/31/85	2. A	Gift
xborough	F. Gilbert Hills S.F.	William E. Barton Corporation	12/31/85	138 A	1,141,551.
ncock	Pittsfield S.F.	Frank & Gertrude Hornyak	1/7/86	115 A	50,000.
ewster	Nickerson S.P.	John A. Spargo	1/8/86	19.3 A	1,565,000.
ewster	Nickerson S.P.	Brewster Dunnes II Cooperative Rec. Housing, Inc.	1/24/86	26.6 A	1,000,000.
ewster	Nickerson S.P.	Commonwealth of Mass.	1/24/86	--	Easement
ewster	Nickerson S.P.	Rebecca H. Whiting Trustee Keeler Pond Trust	2/10/86	19.6 A	275,000.
ainfield	Hawley S.P. (Dewey Lot)	Trust For Public Land	3/13/86	60 A	48,000.
ridge	Blackstone River & Canal Heritage S.P.	Stanley Woolen Company	4/7/86	35 A	235,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1986

LAND ACQUISITION - 7/1/85 to 6/30/86

CATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
well	Lowell - Dracut & Tyngsboro S.F.	Grace M. Dean & Deborah D. Ayotte	7/3/85	6.7 A	$140,000.
ttsfield	Pittsfield S.F.	Edward & Dorothy L. Krutiak	7/5/85	100. A	65,000.
gham	Boston Harbor Islands	D.E.Q.E.	7/16/85	--	License Pier
tport	Horseneck Beach	Westport Conservation Commission	8/2/85	--	Order of Conditions
wburyport	Moseley Estate	Trust For Public Land	8/5/85	413 A	4,600,000.
wburyport	Moseley Estate	Trust For Public Land	8/5/85	3 A	200,000.
rlborough	Bay Circuit	Eugene & Katherine O'Donnell	8/16/85	235 A	4,000,000.
uglas	Douglas S.F.	Burton E. Carter	9/11/85	14.67 A	40,000.
ron	Borderland S.P.	Robert & Ethel Morse	9/18/85	177 A	1,200,000.
glas	Douglas S.F.	Douglas & Marione Smith	10/21/85	22,000 S.F.	22,000.
wster	Nickerson S.P.	John & Anne Droescher	10/31/85	14,850 S.F.	176,000.
ton	Moore S.P.	Charles F. Brady	11/13/85	5.3 A	22,500.
tmouth	(Horseneck Beach) Conservation Restriction	Yacubian & Wright	12/27/85	(76. A)	150,000.

WATER RESOURCES

WATERWAYS

OFFICE OF SAFE WASTE MANAGEMENT

ANNUAL REPORT FY 86

I. Introduction

During FY 86 the hazardous waste program in DEM underwent significant administrative reorganization. The legislation decision to consolidate the solid waste functions at the Bureau of Solid Waste within one agency, DEQE, gave rise to a reexamination and redefinition of DEM's hazardous waste program. As a result, the Office of Safe Waste Management was created within DEM to continue our mandate to foster improved hazardous waste management.

Consistent with the DEM's mission "to preserve, protect and enhance natural and cultural resources of the Commonwealth to improve the quality of life for all its citizens", DEM's Safe Waste Management Program addresses its responsibilities of developing strategies for environmentally sound waste management and increasing public awareness about hazardous waste issues and solutions.

DEM program priorities include implementation of programs to ensure

better management of hazardous waste, at all levels, in the Commonwealth by:

- continuing to build on the coalitions program to involve local and regional groups in hazardous waste problem solving, and increasing its effectiveness through sharing of ideas.

- more effectively addressing the management of individuals household hazardous wastes through state action to publicize, organize, and coordinate regional collection days with state financial support.

- encouraging opportunities to reduce hazardous wastes in business and industry, at their source, through exploration of technical and financial options, identification of opportunities for publicity and information exchange, and recognition of of "success stories" in the private sector.

- facilitating the siting of treatment facilities in the Commonwealth that respond to the area's needs and responsibilities through rigorous public analysis of waste generation, current options and their implications, and by the identification of facility options which address the immediate and long term needs of the Commonwealth.

A. Coalitions Program

During this year eight regional coalitions continued to use their their DEM grants as seed money for local hazardous waste projects. In addition, they played an important role in DEM's pilot small quantity generator program, the autobody shop project, coordinating eight workshops held statewide.

The FY86 projects reflected the varied interest of the coalitions themselves and provided fresh ideas for future public education activities. In a number of areas the coalitions conducted workshop sessions to update local officials on hazardous waste problems, such as leaking storage tanks and and groundwater, and share experiences on efforts to reduce the risk through local regulation. In other instances materials were produced, pamphlets, slide shows, and public service announcements for television, which may be reproduced for use statewide.

Some projects complemented DEM's own program initiatives such as the design and construction of the household hazardous waste exhibit at the Worcester Science Center. Others explored potential strategies for solving particular waste management

problems such as chemistry lab waste exchanges and a small quantity generator bargaining cooperative.

One project in particular, a coalition study of the regionally important the jewelry industry may lead to a significant DEM effort serving an industry under regulating pressure by exploring options for reducing hazardous waste at its source through a university-intern program.

B. Household Hazardous Waste Collection Program

The problem of household hazardous waste is a very serious one that touches virtually every citizen in the Commonwealth. It has been estimated that the average Massachusetts household contains between three and ten gallons of disposable hazardous materials. This typically includes cleaning supplies, paint, pesticides, and automotive products.

Most of these wastes, however, are disposed of improperly -- poured down drains, put on the curb with garbage, or even worse, dumped directly into storm drains, creeks, ponds, and lakes. Waste disposed of in such illegal ways may be contaminating our groundwater supplies -- the source for over half of the Commonwealth's drinking water. The most effective way to reduce this problem is to educate citizens about alternative safe and proper disposal methods.

The Department of Environmental Management and the Department of Environmental Quality Engineering have cosponsored "Operation Clean Sweep", a $400,000 community match grant program. The program has helped communities who have organized and held local household hazardous waste collections during FY86. This pilot program was funded under an FY84 appropriation to DEQE. During the past year DEM has been responsible for program administration and will explore the possibility of implementing this type of program in the future through its public education efforts.

During FY86 DEM and DEQE were able to announce funding (retroactive) for collections that took place in the Fall of 1985 an the Spring of 1986. 31 communities with a total population of 925,846 obtained $62,217 to match their locally raised share in the fall period. 33 communities with a total population of 580,899 received an additional $118,000 reimbursement for collections held last spring. In both instances the grants were made retroactively as the regulations were being finalized.

In the past twelve months citizens have brought over seventy tons of hazardous materials to collection days in their communities. During FY87 DEM will explore an expanded program as a pilot program aimed at improving efficiency through aggregating smaller communities and utilizing existing regional institutions

such as planning agencies. Through the grants from "Operation Clean Sweep" and DEM's energetic public education effort approximately 2.5 million people will be reached -- 33% of Massachusetts' population.

C. Small Quantity Generator Program

This program is designed to reduce the generation of hazardous waste and improper disposal practices while increasing SQG awareness of the problem and compliance with state regulations. During FY86 a pilot effort, funded by a grant from Environmental Protection Agency, has focused on hazardous waste generated by autobody repair shops.

DEM has worked with the industry and the Department of Environmental Quality Engineering (DEQE) to identify the target population, determine which are currently in compliance, and notify the rest about hazardous waste rules and DEM program. We have identified potential source reduction practices appropriate to autobody shops and created an outreach program in conjunction with public/industry coalitions throughout the Commonwealth. Through letters, telephone contacts and conferences, DEM encourages these businesses to comply with regulations by reducing the generation and disposal of hazardous wastes. Concurrent with DEM efforts. DEQE targeted a number of SQGs in the state for inspections, and in particular, autobody

shops. Evaluation of the pilot effort will occur through monitoring of reporting and waste management practices.

There are approximately 2600 businesses engaged in autobody repair in the state. These shops generate a variety of wastes which are considered toxic. The most significant are the thinners and reducers used in spray painting and clean-up. Because of the characteristics of the material, the wastes can be recovered and reused on-site or by a central facility. They are also used as a fuel in high-temperature kilns. To the extent that autobody shops recognize their solvents as an economically valuable resource rather than waste requiring disposal, improper disposal are likely to decline.

Massachusetts, like most other states, has thousand of other small quantity generators (SQGs) producing various types of hazardous waste. Only a small percentage of these SQGs are thought to be in compliance due to both ignorance and economics.

Many of these small businesses face prohibitively high costs of waste management, simply because they do not have the volumes necessary to attain any economies of scale. As a result, SQGs may they do not have the volumes necessary to attain any economies of scale. As a result, SQGs may pay more for waste management, simply because they do not have the volumes necessary to attain any economies of scale. The actual waste

WATER RESOURCES
WATERWAYS

stream volume produced by SQGs in Mass. is unknown, but if national estimates are applicable to this state, at least 20,000 tons are generated each year.

During the latter part of FY86 DEM initiated a contract with a consulting to assist the agency in choosing potential target industry sectors for next year's SQG project. This effort will enable DEM to focus it's resources on those smaller businesses in need of assistance in finding practical alternatives to bring them into compliance with regulations.

D. SOURCE REDUCTION PROGRAM

Policy

The aim of this program is to identify source reduction potential in the Commonwealth, establish realistic goals to reduce the amount of hazardous waste generated by the Commonwealth's industries, assist industry in meeting these goals (beginning now with preparatory and pilot assistance programs), and to increase public and industry awareness about the benefits and realities of source reduction in conjunction with eight regional hazardous waste coalitions funded by DEM's public education program.

Analysis of the data suggests that initial projects should target the jewelry manufacturers, other platers, autobody shops, the electronics industry and the paint industry as those which create high levels of hazardous waste per unit product, have the potential for major reductions and should be amenable to source reduction incentives presently under development.

Source reduction opportunities have been identified in the precious metals industry because of the new regulatory constraints of the 1984 RCRA Amendments. In fiscal year 1986, the Southeastern Massachusetts Task Force on Environmental Management began a study of source reduction opportunities in the region's precious metals industry in an effort to mitigate the hardship created by the new legislation.

The study was originally seen a one-year project involving faculty and students from Southeastern Massachusetts University. We expect faculty to interest students in economics, finance, business management, labor relations, engineering disciplines, etc., to look at the industry through their disciplines under the Directed Studies Program. The original intent of the program was to take reports from these students and pull them together as pieces of a comprehensive industry study to be used as a model for other industries important to Massachusetts.

E. Waste Management Policy and Planning Program

This role is mandated under Chapter 21D. The program addresses DEM's integration of its siting, GEIR preparation, and Source Reduction responsibilities. It cultivates the climate for facilitating proper waste management through information exchange, analysis of waste data, including household and 21E waste and market analysis for facilities and for public information. The program analyzes effectiveness and impacts of source implementability and identifies incentives and disincentives of SR. Through the GEIR and other studies of hazardous waste management, DEM provides basic information to assist all Massachusetts citizens in decision making on issues such as treatment facility siting.

Under 21D DEM is charged with assisting developers of hazardous waste treatment facilities in the siting process. DEM has interpreted this function as providing information and assistance before the formal siting process begins to identify basic attributes and limitations of the proposal in order to enable the public and the developer to focus on the real issues

during the formal review. In past siting attempts DEM has not always been able to maximize this role due to the developer's choice of how he wished to procede. In FY85 DEM's major siting activity had been preparing the groundwork for a proposal in Taunton. Following a deliberate strategy of finding a good developer, proposal, and site, DEM had been involved with informal negotiations with most of the concerned parties for almost a year prior to the announcement of the proposal. While this process has been praised on its merits, it did not this time , lead to a successful siting. Subsequently, During FY86 the Commissioner was charged by the Secretary of Environmental Affairs to initiate a formal review of Chapter 21D and recommend corrective legislation.

The Commissioner recommended that specific economic incentives be included immediately, and that a committee be formed to develop recommendations to improve needs and risk assessment, the two most critical components of past siting experiences. A committee has since been formed under the direction of EOEA and continues to work on these important elements

During FY86 DEM continued to integrate and analyze data to be used in the development of the GEIR. The evolution of the analysis of the siting process since the Taunton experience has resulted in much more sophisticated questions that must be addressed. DEM has been developing drafts of the GEIR to reflect both the demands for better data and the need to elevate the analysis to a higher level. The report is expected to be completed in the fall of 1987.

A tentative proposal is under discussion to provide incineration capacity in Massachusetts for organic wastes, household hazardous waste, and wastes from superfund clean ups. Numerous questions have been raised involving projected wastestreams, competitive market conditions, and general site suitability issues. Both the demand and supply sides of this treatment area are rapidly changing as a result of increased regulation and compliance. The preliminary incinerator proposal raises many questions concerning both local and regional markets for such a facility. The proposal to include household hazardous wastes and 21E cleanup wastes in the waste stream of a new incinerator is an entirely new dimension to prior waste management scenarios. These are the kinds of sophisticated questions that are being examined in the hazardous waste management program and documented in the GEIR. The program directly serves DEM s fundamental goal of creating a knowledgeable environment in which citizens can make informed decisions regarding siting proposals.

WATER RESOURCES

WATERWAYS

ANNUAL REPORT

DIVISION OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

for the

FISCAL YEAR ENDING - June 30, 1986

WATERWAYS

DIVISION OF WATER RESOURCES

INTRODUCTION

Division's Primary Goals

The Division has three primary goals: 1) Data Collection, 2) Flood Control and 3) Water Resources Planning.

1. Collect, refine and update basic water resources data for dissemination to state, federal and local agencies and the general public.
2. Plan, implement and maintain works of improvement to prevent loss of life and damage to property from erosion, floodwater and sediment in the watersheds of the rivers and streams of the Commonwealth.
3. Facilitate the development of a statewide comprehensive water resources management plan for Massachusetts formulated from river basin plans being developed from local, regional and state assessments of water needs and resources in conformance with the Massachusetts Water Policy Statement.

Division's Legislative Authorization

The Division operates under M.G.L.Chapter 21,Sections 8 through 16, as amended by Chapter 589 of the Acts of 1983. At that time, the Division was placed exclusively under the supervision and control of the Commissioner of DEM and most of the duties formerly assigned to the Water Resources Commission were transferred to the Division of Water Resources. In 1984, the Division was designated by the Secretary of Environmental Affairs as the agency to provide the staff support to assist the Water Resources Commission in administering the Interbasin Transfer Act and the sections of the Coastal Zone Management Act reorganizing the Water Resources Commission relating to river basin planning and coordinating EOEA's water resources planning efforts.

PERSONNEL OF THE DIVISION (as of June 30, 1986)

Kennedy, Charles F.	Director & Chief Engineer
Pyle, O. Fletcher	Associate Civil Engineer
Beshara, Michael L.	Associate Civil Engineer
Maguire, Kevin B.	Senior Civil Engineer
Terranova, Frank	Senior Civil Engineer
Thibedeau, Richard H.	Chief Planner
Phippen, Peter D.	Principal Planner
Bones, William F., Jr.	Principal Planner
Asen, Steven	Resources Planner
Siegfriedt, Faye N.	Resources Planner
Graham, Deborah	Resources Planner
Cook, Raymond C.	Program Manager
Lesser, William	Senior Planner
DiBattista, Cheryl	Administrative Assistant
Russo, Roseann	Senior Statistical Clerk
Maloney, Kim	Principal Bookkeeper
Smith, Michelle	Junior Clerk Typist

I. BASIC DATA

A. Water Resources Data Interchange

One of the important services of the Division of Water Resources is the dissemination of basic water resources data and assessment of data to federal, state and local government, water resource agencies and the general public.

During FY86, the Division responded in a timely manner to an average of 30 daily requests for information and publications.

B. Basic Data Acquisition

1. Basic Data Gathering

This program includes the measuring, orderly recording, evaluation and periodic reporting of precipitation, stream gauging, snow surveys, reservoir elevations and flood monitoring. This information is necessary for detailed water supply and flood control planning, design, construction and operation. The Division operates a system of 199 rainfall stations. Statistical records are maintained on daily, monthly and annual precipitation for each station and compilations for five geographic sections and the state as a whole are computed with comparison to the long-term normal. Rainfall records for calendar year 1985 are attached to this report.

Accomplishments during FY86:

- Monthly rainfall reports were computed and averaged. Records were kept and comparisons made to determine surplus/deficient rainfalls.
- Each month reservoir levels were received, recorded and reviewed to monitor water levels.
- During the winter months information on the amount and water content of snow on the ground was received. With this information the potential runoff was determined for flood control purposes.

2. Well Drilling Program

The Division is responsible for the yearly registration of well drillers in the Commonwealth. The law requires that within 30 days after a well is drilled, a well completion report must be filed.

Accomplishments during FY86:

- During the year 318 well drillers were registered.
- More than 4900 well completion reports were received and filed for future reference.

3. Water Use Data Program

This program focuses on refining water use information for input into the data base of the U.S. Geological Survey (USGS) State Water Use Data System (SWUDS) through a Division of Water Resources/ USGS cooperative program to automate basic water resources data. The system is designed to be of maximum utility to other water resources agencies and to the DWR river basin planning effort.

Accomplishments during FY86:

- Of the 1005 active community water supply wells listed in DWR records, 880 have been accurately located and entered into the data base. The remaining 125 public water supply sources are being analyzed and coded.

- Twenty-four data points of information for each of the major water supply systems have been automated.

C. Regional Resource Evaluations

1. Water Resources and Priorities Study

This study is conducted in cooperation with the Soil Conservation Service and is designed to expand information supporting the Early Acquisition of Reservoir Sites Program for future water needs. This study evaluates and prioritizes the prime reservoir sites in the State's 27 river basins identified in the Massachusetts Water Resources Study completed in 1978. Using a screening process, the number of sites were reduced to 50. Field work was completed and work focused on the preparation of draft site reports.

Accomplishments during FY'86:

- Ten draft site reports using a new format were completed.

2. "Atlas Program" - (Groundwater Favorability Studies)

This cooperative USGS/DWR Program produces basic hydrologic information and assesses the quantity and quality of ground and surface water resources for each river basin in the state.

Accomplishments during FY'86:

- Work continued with the Westfield/Farmington Basin study, the final one in this series.

- All but five of the basin studies have been published and distributed. The Chicopee, French/Quinebaug, Cape Cod, Blackstone and Westfield/Farmington studies are in final stages of publication.

- A final state summary atlas begun during this year, will be finalized during FY'87.

WATERWAYS

3. Stream Gaging Program

This program is conducted in cooperation with the U.S. Geological Survey.

Accomplishments during FY'86:

- Streamflow data was collected for the 78 gaging stations operating in 1986.

- Analysis of the 1985 water year surface water data was completed.

4. Groundwater Assessments Study Program

This cooperative program with the U.S. Geological Survey provides baseline data on major aquifers of river basins in the Commonwealth. These comprehensive assessments identify areal extent, depth, hydrologic characteristics, the quality and quantity of water and the effects of water use alternatives.

Accomplishments in FY'86:

- Two basin assessments have been completed with publication and distribution of the Mattapoisett River Basin Study in 1985 and publication of the Connecticut River Basin Study in the latter part of calendar year 1986.

- Seven basin studies were in progress during fiscal year 1986: Charles, Taunton, Plymouth, Nashua, Blackstone, North, Neponset.

D. Early Acquisition of Reservoir Sites Program

The Division is authorized to acquire land, water or easements to protect future water resources values and conserve impoundment sites for the purpose of flood control, low flow augmentation and/or municipal water supply. Previous acquisitions have assisted to augment the public water supplies serving the communities of Newburyport, Salem, Beverly, Abington, Rockland and sections of Hanson, Pembroke, Norwell, and Hingham.

Accomplishments in FY'86:

- Acquisition of land to expand the Emerson Brook Reservoir in Middleton, serving the communities of Danvers and Middleton, was approved by the Water Resources Commission.

- An application from the City of Brockton to acquire a future reservoir site in Kingston was reviewed and detailed information pertaining to the proposed site was developed by the Division.

E. Massachusetts Water Resources Authority - Long Range Water Supply Study

This comprehensive study was initiated by the Metropolitan District Commission to evaluate the alternative solutions to meet the water supply needs of the Metropolitan Boston area. It continues under the direction of the Massachusetts Water Resources Authority. The study encompasses the water use, demand and supply alternatives for the 45 communities presently served.

During FY'86, the Division participated in this study by:

- Developing the basic water resources data on local safe yields used in this study.
- Reviewing drafts of the material produced.
- Attendance at several public meetings held during the course of the year.

II. FLOOD CONTROL

A. Watershed Protection and Flood Prevention Act (PL 566) Program

The flood control program, to reduce damage caused by floods, of the Division of Water Resources is a cooperative effort with the U.S. Department of Agriculture, Soil Conservation Service under the Watershed Protection and Flood Prevention Act (PL 566). The first flood control project was built in 1961 and since then 29 projects have been completed. The Division of Water Resources, with annual budget allocations, is responsible for maintaining 23 of these projects. Vandalism is a problem at the sites because of all terrain vehicles that enter the sites and destroy the protective vegetation. To remedy this situation additional maintenance funds have been requested in the FY '87 budget.

Accomplishments during FY'86:

- Fisk site in Framingham -- construction is on schedule.
- Schoolhouse Lake site in Washington -- the necessary permits are being obtained and a contract for construction will be executed early in FY'87.
- Clam Lake site in Sandisfield -- funds have been requested in order to utilize the area for recreation and as a flood control facility.
- Washington Mountain Lake Dam in Washington -- investigations are under way to determine the cause and evaluate the alternatives for repairs required because of a seepage problem.
- 1000 Acre Swamp site in New Marlboro -- the water control gate needs repair and funds for repair have been requested in the annual maintenance budget. The State of Connecticut will be billed for their share of the repairs in accordance with the original interstate agreement.

B. Floodplain Management Studies

The joint DWR/SCS (U.S. Soil Conservation Service) studies, authorized by Section 6 of Public Law 83-566, provide needed information to communities where flood damage is a serious concern and local governments want to take action to reduce these damages; thus, these studies are site specific and of a problem-solving nature.

The Division of Water Resources is the coordinating agency for the SCS Flood Management Program. It receives applications from the communities, provides data used in conducting the studies and coordinates agency review of draft reports.

Accomplishments during FY'86:

- Salisbury Brook in the City of Brockton -- the preliminary report was completed and is presently under review by city officials.

- Congamond Lakes in the Town of Southwick -- a floodplain management study for the Congamond Lakes as requested by the town and the Hampden Conservation District, has been completed. The study included flood damage assessment, solutions to problems of sedimentation and debris accumulation, water quality improvement and the adequacy of outlet structures.

- North River in the Town of Colrain -- a plan of work for this study was completed and the study initiated to develop alternatives in order to reduce flooding, control excessive stream bank erosion and sedimentation and to assess local needs and objectives.

C. Federal Emergency Management Agency Program

1. National Flood Insurance Program

Of the participating communities in the Commonwealth, 295 are in the Regular Program and 25 in the Emergency Program. Six (6) communities have been suspended from the program for failure to adopt required land use measures.

2. Flood Hazard Management Program (FHMP)

The Flood Hazard Management Program (FHMP) with assistance from the Federal Emergency Management Agency (FEMA) is empowered to render floodplain management assistance to three hundred and twenty (320) local communities through the State Support Service Element and the Community Assistance Program (SSSE/CAP). FHMP activities include working with local community officials to assist them to become self-sufficient in floodplain management. This involves visits to communities, telephone coordination and review of floodplain development projects, as requested by local officials.

In February, a new Program Manager was hired. In addition, an Assistant Planner and Administrative Assistant were hired on an 03 contract basis. Hiring of new staff members will enable the Division to carry out and complete the FHMP objectives for fiscal years 1986 and 1987.

Accomplishments during FY'86:

- Secured from FEMA modification of current year contract (FY 1986).

- Conducted forty (40) Community Assistance visits in designated local communities to provide on-site mandatory technical assistance to implement FEMA-NFIP Regulatory requirements, the Massachusetts Building Code and the Massachusetts Wetland Protection Act.

- Distributed 3,000 National Flood Insurance Program map publications to private industries, local communities, public agencies and other organizations.

- Provided technical assistance for early conversion of the Town of New Salem, from the emergency phase to the regular phase of the National Flood Insurance Program through ordinance evaluation, land permit assessment and evaluation of the effectiveness of procedures used by town officials.

- Contacted eighty-five (85) communities by telephone to establish a working relationship and to offer technical assistance where needed.

- Reviewed 200 permit requests made to local officials by land owners, engineers and planners.

III. WATER RESOURCES PLANNING

A. River Basin Planning Program

The Division of Water Resources is responsible for implementing the Water Resources Commission's Water Resources Management Planning Regulations (313CMR2.00). The basic purpose of these regulations is to establish a framework for developing river basin plans and a statewide comprehensive water resources management plan for Massachusetts. These plans are being developed from local, regional and state assessments of water needs and resources in conformance with the Massachusetts Water Supply Policy Statement.

Accomplishments during FY'86:

- Completed collecting water resources data from communities in the Charles and Ipswich River Basins.

- Prepared year 2020 water need projections for the Charles and Ipswich River Basins.

- Prepared tables and sections of the Inventory and Analysis of Current and Projected Water Use reports for these basins.

- Completed work on reactivating and updating the hydrologic simulation computer model for the Ipswich River. A report describing the variables used the model and the results of the various "runs" is being drafted. This effort includes the collection and analysis of 1985 water use data from local water suppliers in order to refine the data on current and projected water use in the Ipswich Study Area and the input of additional water resources data in the computer model.

- Published a "Directory of State, Federal and Regional Water Planning and Management Agencies".

- Prepared water resources planning reports to include an analysis of available water resources and projected water needs for the Towns of Wellesley, Natick, Needham and Dover to assist DCPO in allocating the water rights of the Elm Bank property in Dover.

- Began the process to update the 1982 Municipal Water Resources Management Plan - Phase II Questionnaire by requesting communities applying for DEQE local grants to submit a 1985 addendum.

- Developed a process to estimate the amount of self-supplied agricultural water use.

B. State Land Management Planning

To assist in the development of the Guidelines for Operation and Land Stewardship (G.O.A.L.S.) plans for the State's Forest and Parks, the Division provides water resources data and reviews the water resources section of the draft plans.

Accomplishments in FY'86:

- Reviewed the hydrologic section for the Daughters of the American Revolution and Wampatuck State Parks plans.

C. Interbasin Transfer Act

The Interbasin Transfer Act delegated to the Water Resources Commission the Authority to approve or disapprove the transfer of water between river basins. The Division is responsible for coordinating the technical review of proposed interbasin transfers.

Accomplishments during FY'86:

- Prepared application forms, established review procedures and published an explanation booklet entitled: "A Guide to the Application of the Interbasin Transfer Act and Regulations".
- Coordinated the technical review of Brockton's application under the Interbasin Transfer Act to transfer four million gallons per day from Pine Brook in Kingston for use by the Brockton Regional Water Supply System in the Taunton Basin.
- Reviewed applications for determination of applicability and insignificance.

D. Water Resources Planning Task Force

The Water Resources Commission established a Water Resources Planning Task Force to assist the Commission in coordinating water resources planning among the agencies and departments in the Executive Office of Environmental Affairs. The task force is the primary mechanism to implement Chapter 21A Section 8B(b) establishing the planning, coordinating function of the Commission, as reorganized in 1983. The Division chairs and provides staff support to the task force.

The Task Force met monthly during FY'86 and focused on the following issues:

- Developing guidelines for establishing minimum instream flow levels.
- Developing guidelines for municipal water conservation programs.
- Reviewed application procedures, forms and explanatory materials being prepared for the implementation of the Interbasin Transfer Act.

E. Water Resources Policy Task Forces

The Division actively participates in WRC and other EOEA agency task forces formed to address various water resources policy issues.

Task Forces active during FY'86:

- Marine Water Quality Task Force
- Water Supply Task Force
- Drought Management Task Force
- Cape Cod Aquifer Assessment Task Force
- Ocean Sanctuaries Task Force
- Water Resources Policy Task Force

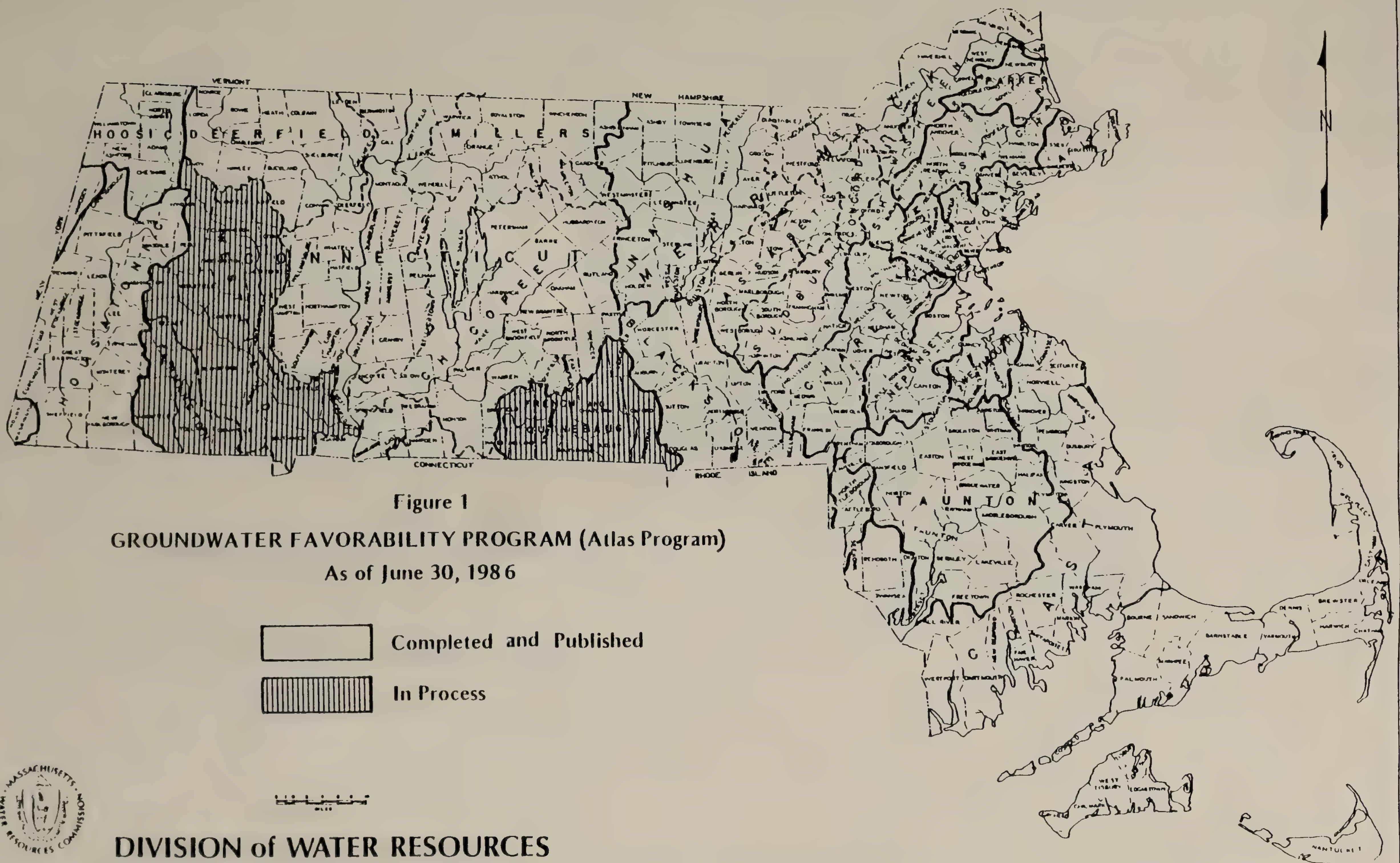

Figure 1

GROUNDWATER FAVORABILITY PROGRAM (Atlas Program)

As of June 30, 1986

☐ Completed and Published

▥ In Process

DIVISION of WATER RESOURCES

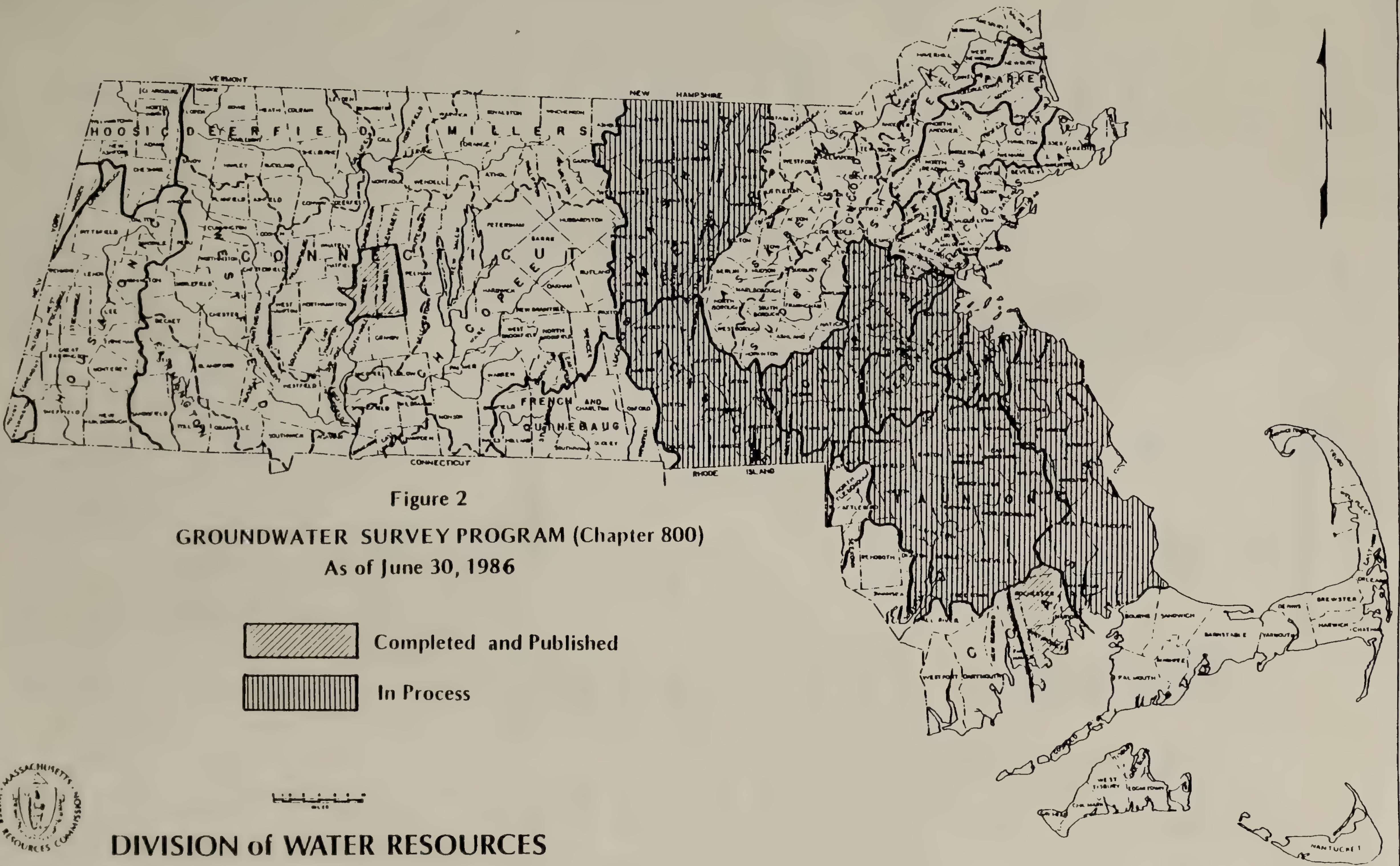

Figure 2

GROUNDWATER SURVEY PROGRAM (Chapter 800)

As of June 30, 1986

▨ Completed and Published

▥ In Process

DIVISION of WATER RESOURCES

MASSACHUSETTS PRECIPITATION 1985
(inches)

	State	Northeast Section	Southeast Section	Central Section	Connecticut River Section	Western Section
January	1.17	0.92	1.28	1.09	1.21	1.27
February	2.37	2.15	2.05	2.48	2.39	2.45
March	2.88	2.75	2.78	2.81	2.95	3.00
April	1.48	1.32	1.50	1.75	1.55	1.23
May	3.72	3.64	4.97	3.56	3.71	3.71
June	3.90	3.70	4.48	3.78	4.35	4.90
July	3.36	3.48	3.39	3.02	5.75	4.78
August	6.77	5.57	10.29	5.34	4.64	3.55
September	3.41	3.41	1.85	3.98	5.25	5.07
October	2.29	2.58	1.81	3.13	3.07	2.76
November	6.27	7.08	6.26	6.58	6.65	5.28
December	1.55	1.27	1.12	1.73	1.81	1.98
Year	39.17	37.87	41.78	39.25	43.33	39.98
Normal	44.33	42.70	44.85	44.77	45.16	45.14

WATERWAYS

MASSACHUSETTS PRECIPITATION 1985
DEVIATION FROM NORMAL
(inches)

	State	Northeast Section	Southeast Section	Central Section	Connecticut River Section	Western Section
January	-2.48	-2.75	-2.69	-2.72	-2.20	-1.96
February	-0.99	-1.28	-1.62	-1.05	-0.93	-0.54
March	-0.99	-1.07	-1.45	-1.27	-0.72	-0.40
April	-2.18	-2.30	-2.53	-2.03	-2.15	-2.56
May	+0.03	+0.28	+1.55	+0.00	-0.39	-0.35
June	+0.32	+0.32	+1.12	+0.08	+0.38	+0.72
July	-0.32	+0.02	+0.40	-0.52	+1.62	+0.44
August	+2.81	+1.98	+6.28	+1.69	+0.62	-0.71
September	-0.18	-0.07	-1.77	+0.26	+1.52	+0.99
October	-1.24	-0.72	-1.79	-0.27	-0.43	-0.65
November	-2.86	-2.42	-0.70	-3.32	+0.03	-3.54
December	-2.23	-2.41	-3.00	-2.21	-1.86	-1.62
Total Excess or Deficiency for Year 1985	-10.31	-10.42	-6.20	-11.36	-4.51	-10.18

WATERWAYS

ANNUAL REPORT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF WATERWAYS

FISCAL YEAR 1986

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF WATERWAYS

ANNUAL REPORT -FISCAL YEAR 1986

JOHN J. HANNON, P.E. DIRECTOR

PURPOSE

The Division of Waterways is responsible for improving, maintaining and protecting tidal and non-tidal rivers and streams, harbors, tidewaters, shores and foreshores and along a public beach, including the Merrimack and Connecticut Rivers, under Chapter 91 of the General Laws. In addition, the Division is authorized through special legislative acts and resolves to perform functions that are beyond the scope of Chapter 91.

Under Chapter 589 of the Acts of 1983 certain functions of the Division were transferred to the Department of Environmental Management from the Department of Quality Engineering; authority to construct projects and facilities, the authority to dredge the waterways of the Commonwealth, the ownership and management of state piers, the ownership and management of certain land and the dam maintenance and safety program.

A list of the chief functions and responsibilities of the Division are as follows. The Division:

I. Under Chapter 91

a. administers the waterways design and construction program which includes projects such as shore protection, harbor improvements and development, stream clearance, flood control, renovation and repairs to municipal dams, repairs and improvements to the State owned piers at Gloucester, Fall River, and New Bedford. The design and supervision of construction is performed by the Division's staff engineers or by consultant engineers.

b. maintains record information of activities on the great ponds, rivers, tidelands, shoreline, and various land parcels and or easements obtained by the Commonwealth, for the construction of items mentioned in Item a.

c. acts as the coordinating agency for Federal harbor development, shore protection, erosion, and flood control, stream improvements projects which are done on a cooperative basis (i.e. in some cases, only fiscal cooperation and in other cases, both fiscal and engineering cooperation).

d. prepares and monitors Federal, State, and Municipal Agreements for federal projects undertaken by the Corps of Engineers.

e. is in charge of the State Pier in New Bedford.

f. leases the State Piers at Gloucester and Fall River.

II. Under Special Legislation

a. acts as the Contract agency for the Public Access Board. As such, represents the Chief Engineer at Board Meetings. Designs and supervises construction of public boat launching sites approved by the board.

b. in accordance with the provisions of Chapter 501 of the Acts of 1968 as amended, acts as the Contract agency to acquire land to design and construct capital improvements and/or new facilities on any ocean beach, ocean reservation, swimmming pool, or skating rink outside the Metropolitan District Commission area.

c. administers the projects funded annually and authorized by the "Harbors and Inland Waters Maintenance Program" established by Chapter 870 of the Acts of 1970. The work includes design and construction of maintenance dredging, erosion and flood control projects, cleaning harbors, inland waters and great ponds to reduce hazards to navigation enhance safety and the environmental protection of these bodies of water.

d. administers the design and construction of Capital Improvements identified in Capital Outlays passed by the Legislature.

e. assists the Office of Coastal Zone Management in administering the Coastal Facilities Program as authorized under Chapter 589 of the Acts of 1983 and the Grant for the Town of Hull for Allerton Bluff as authorized by Chapter 233 of 1984, Section 32.

f. is represented on the following Commissions or Boards. Public Access Board, Boston Harbor Commission (Legislative) and Underwater Archeological Resource Board.

g. is administering, with the assistance of the Office of Coastal Zone Management, the study of a generic disposal site for dredge material in Cape Cod Bay.

h. acted in an advisory capacity for the White Paper Task Force for Boston Harbor and Massachusetts Bay.

FY "86" MAJOR DEVELOPMENTS

Eleven (11) projects were completed during FY 1986 and five (5) projects were under construction at the close of the fiscal year. In Northampton, the reconstruction of the Leeds Meadow Dam was completed at the total cost of $633,700.00 and turned over to the Town for operation and maintenance. Emergency repairs to the cargo shed were completed at the New Bedford State Pier. Two (2) bulkheads were repaired in Hull and Wellfleet and turned over to the Towns. Restoration of the Departments' Lake Ashmere Dam in Hinsdale were completed.

Two (2) dredging projects were completed in Quincy and Bourne totalling $520,100.00 and a third project in Hingham valued at approximately $770,000.00 was partially completed and anticipated to be completed in the Fall of 1986. A project to clean a portion of the Matfield River in East Bridgewater was completed at the cost of $240,538.

Restoration of the beach at Pickman Park in the City of Salem was also completed during this past year as well as the installation of a Flood Control Structure on Straits Pond in the Town of Hull and Cohasset.

Construction commenced on the Relocation of the Bournes Pond Inlet in Falmouth and is scheduled to be completed on September 1, 1986. This project will greatly increase the water quality of the Pond. In Sandwich, expansion of the Town's Marina at the East Boat Basin began and is scheduled to be completed and turned over to the Municipality by October 1, 1986.

Rehabilitation of the Commuter Pier at Hewitts' Cove in Hingham commenced in March of this year and is scheduled to be completed by September 30, 1986. Also under construction and scheduled for completion in September 1986 is the Replacement of the Fender System at the Fall River State Pier.

The design program consists of 76 projects which includes major projects such as Dam restorations in Templeton, Hudson, Marlboro, and Norwood, pier reconstruction in Wareham, New Bedford and bulkhead and Seawall construction in Chilmark and Oak Bluffs. Dredging in "Harwich, Bourne, Scituate, Manchester, Cohasset, Oak Bluffs and Edgartown. Flood control improvements in Southwick, Mendon, North Adams, Norwood and Milford.

RECREATIONAL FACILITIES

Rinks and Pools

The Division is still involved with proposed Recreational Facilities. The scheduled skating rink in the Ciy of Northampton is awaiting Special Legislation language change which will authorize land acquisition in the total appropriation.

Division personnel are involved with the design of a proposed swimming facility in the City of Lawrence.

In addition, the Division is available to D.E.M. Forest and Park Division for the continuous maintenance program of existing recreational facilities.

Multi - Sport Complex

The Division has commenced a study to determine the feasibility and location of a Multi Sports Complex in Southeastern Massachusetts.

RIVERS AND HARBORS PROGRAM

Through this program, local governments petition the the Division of Waterways at annual hearings to undertake renovations and improvements to the various inland and coastal waterways of the Commonwealth.

Dredging, wharf, bulkhead repair, streambank erosion control, stream clearance and boating facilities are typical projects, ranging in cost from $50,000 to $500,000. The Division carefully evaluates each petition and selects the most needed, environmentally sensitive, feasible projects with the greatest public benefits. Communities must share the costs: 25% for dredging and 50% of all other types of projects.

Of the projects awarded in 1986 the Division has under design five (5) projects and (1) is under construction. We have executed twelve (12) agreements of which nine (9) have been designed and three (3) are under construction. Six (6) agreements are being negotiated and we anticipate that they will be issued within the next several months.

In anticipation of new funding, the Division held Rivers and Harbors hearings in the Spring of 1986 and accepted 54 petitions representing almost $20 million in project costs.

These positions are being reviewed and evaluated and projects will be selected when funding becomes available.

NEW BEDFORD STATE PIER

The following is a descriptive narrative of State Pier - New Bedford operations during fiscal year July 1985 - June 1986.

During this period 48 vessels that handled either ocean cargo or passengers docked at the facility. Nineteen (19) of these vessels were cargo ships and twenty nine (29) passenger vessels. From these types of ships 7790 short tons of cargo

were handled for a total charge of $11,685. The docking fees for cargo ships totaled $12,250.00. A total of 4640 passengers came through the facility. Docking charges for these ships totalled $5220. The aggregate figures for this phase of the operation are:

Forty eight (48) voyages for a total revenue charge of $29,155.00.

A total of nine (9) fishing vessels used the docking facilities for a variety of authorized reasons and paid a total of $450.00 for such use.

Total income from these miscellaneous visits was $450.00.

During this period potable water was sold to both the United States Coast Guard and visiting vessels. Total income from these sales was $5780.00.

In addition to vessel charges the facility housed five tenants who paid a total of $34,044 for rent and space usage. The United States Coast Guard paid lease fees of $48,000. Total for this part of revenue was $82,044.00.

A special rent fee was paid by the International Commercial Fisheries Show Committee for use of the building and parking area facilities; a total of $2620.00.

Truck scale activity was 2208 units weighed for a total charge of $6947.00.

The cargo buildings were in use daily for all of the fiscal year. The wooden story building is occupied by Portugese American Export Lines on a lease basis. The steel concrete, two level building is normally used for cargo handling and for the storage of cargo handling equipment. The building was used by the Commercial Fisheries show as an exhibition building housing displays relevant to the show for a period of one week in April.

The newest construction was used to stage ocean cargo, both outbound and inbound throughout the year. All of the cargo handled at the facility funnels through this building. This building was also used in conjunction with the Commercial Fisheries Show. The building is also used by some non profit organizations periodically for one day events, at no charge.

Total monies expended during this fiscal year for maintenance, repairs and equipment were less than $2,000. The total income realized by the operation during the period was $126,996.50.

FEDERAL AGREEMENT

Three (3) agreements between the Federal Government and the Commonwealth were executed to authorize Projects on the Blackstone River in Millbury, South River in Conway and the Housatonic in Sheffield. These projects are now under construction and funded by the Federal and Municipal governments.

Three (3) other projects have been discussed for future agreements. One in Saugus and two in Revere.

PROJECT SUMMARY

Eleven (11) construction projects totalling $1,788,304.00 were completed in FY 1986 and five (5) projects were under construction at the end of the Fiscal Year bringing the total construction cost for the year to $5,198,930.. Of these expenditures 25% was spend on dredging, 27.5% on Marinas, piers, and boatramps, and 13% on Dam Projects.

Seventy-six (76) design projects were undertaken at a total cost of $3,097,455and representing approximately $15,112,700. in construction projects. Of these design costs 23% was spent on flood control, 30% on dredging, 11.5% on Marinas, piers and boat ramps, 14% on Dam projects, 4% on state piers and 1% on recreational facilities.

Sixteen (16) new construction projects were advertised at a total cost of $5,198,930.

A breakdown of all projects, by catagories, is shown in this report.

DESIGN CONTRACTS SUMMARY

DIVISION OF WATERWAYS _ FY 1986

TYPE	NUMBER OF PROJECTS	DESIGN COST	PERCENT OF TOTAL DESIGN COST	ESTIMATED CONSTRUCTION COST
Flood Control	22	722,500	23%	5,359,000
Dredging	16	930,600	30%	5,026,000
Marinas/Piers Boat Ramps	8	349,400	11.5%	1,649,000
Erosion Control/ Bank Stabilization/ Shore Protection	11	541,355	17.5%	2,728,700
Dam Rehabilitation	14	441,400	14%	2,734,000
State Piers	4	87,200	3%	350,000
Recreational	1	25,000	1%	N/A
TOTALS	76	3,097,455		15,112,700

CONSTRUCTION PROJECTS SUMMARY

DIVISION OF WATERWAYS - FY 1986

TYPE	NUMBER OF PROJECTS	CONSTRUCTION COST	PERCENT OF TOTAL CONSTRUCTION COST
Flood Control	1	$23,911	0.5%
Dredging	3	1,297,768	25%
Marinas/Piers/ Boat Ramps	2	1,431,430	27.5%
Erosion Control/ Bank Stabilization/ Shore Protection	6	1,462,426	28%
Dam Rehabilitation	2	692,518	13.3%
State Piers	2	290,877	5.7%
TOTALS	16	$5,198,930	

DESIGN PROJECTS

JULY 1, 1985 to June 30, 1986

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS JUNE 30,19
2857-D	Falmouth Bourne Pond	Erosion control Relocate outlet	56,800	888,900	Completed
2864-D	Revere, Sales	Flood Control	18,000	200,000	99% Modifi ation META Culvert
2871-D	Templeton- E. Templeton	Dam Restoration	100,000	1,000,000	85% Design Further En ironmental review in process
2975-D	Revere Sales Creek	Flood Control	180,900	2,000,000	60% awaitin completion Environment
2976-D	Gt. Barrington Housatonic River	Erosion Control	18,000	200,000	Completed Constructi in FY 1987
2993-D	Salem	Erosion Control	17,500	64,800	Complete
3003-D	Revere, Green	Flood Control	48,000	700,000	92% Await C pletion of EIR in Stag Constructi
3008-D	Hull Straits Pond	Flood Control	9,200	24,000	Complete
3013-D	Bridgewater Matfield River	Odor & Sludge removed	99,600	150,000	Complete
3020-D	Boston/ Winthrop	Dredging Study 4 locations	146,000	1,800,000	Complete
3022-D	Webster Webster Lake	Flood Control	32,500	300,000	90% Constuc tion FY 87
3030-D	Essex Essex River	Dredging	50,700	300,000	80%
3035-D	Hudson Washington St. Dam	Rehabilitation	13,000	110,000	100% constr tion FY 87
3040-D	Marlboro	Rehabilitation	$43,500	350,000	90% constru tion FY 87
3044-D	Quincy/ Quincy Bay	Dredging	31,400	321,000	Complete

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 198
3050-D	Winthrop, Gr. Head Drumlin	Slope Stabilization	35,000	250,000	100% Constuc ion FY 87
3051-D	Milton, Pine Tree Brook	Flood Control	13,000	225,000	90% Construc ion FY 87
3054-D	Milton, Pine Tree Brook	Flood Control	9,000	20,000	100% constru -tion FY 87
3055-D	Wellfleet	Bulkhead Replacement/Town Pier	18,800	200,000	Complete
3056-D	Southwick Great Brook	Flood Control Stream Improvement	23,400	500,000	95% construc tion FY 87
3057-D	Mendon Meadow Brook	Flood Control Stream improvement	19,100	45,000	100% constru -tion FY 86
3058-D	Hingham Hewitt's Cove	Pier Rehabilitation	24,200	429,000	Completed
3060-D	Clinton, Counterpane Brook	Study/Flood Protection	35,000	N/A	85%
3061-D	New Bedford No. Terminal	Study of Bulkhead	50,000	N/A	85%
3062-D	Sandwich	Marina/East Boat Basin	34,300	600,000	Complete Con struction FY 86 & 87
3064-D	Upton Wildwood Lake	Dam Repair	7,500	29,000	Complete FY 86
3066-D	Hingham Harbor	Dredging	49,000	750,000	Complete
3067-D	Hull Nantasket Pier	Pier Repair	8,700	40,000	Complete
3068-D	Winchendon Lake Monomonac	Dam Repair	25,000	175,000	100% Constru -tion FY 87
3071-D	North Adams Union St. Brk	Flood Control Drainage Improvement	34,300	250,000	90% Construc tion FY 87

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS JUNE 30,19
3072-D	Norwood Meadow Brook	Flood Control	37,400	300,000	80% Constru tion FY 87
3073-D	Beverly Bass River	Proposed Dredging	33,400	300,000	60% Constru -tion FY87
3074-D	Bourne Maritime Acad.	Dredging/Berthing Platform	39,700	225,000	Complete
3075-E	Hull Allerton Bluff	Erosion Study	36,600	N/A	90%
3076-D	Framingham Fenwick St. Dam	Dam Rehab	35,700	300,000	Complete
3078-D	Cape Cod Bay	EIR Disposal Sites Study	183,000	N/A	75%
3079-D	Fall River State Pier	Replacing Fender	23,300	350,000	Completed
3081-D	Rehoboth Perryville Dam	Dam Repair	24,600	135,000	80% Construction FY87
3082-D	Fall River State Pier	Roof Construction	15,900	250,000	80% Construcion FY 87
3083-D	Taunton Cobb Brook	Flood Control	14,600	150,000	60% Environ-review under way
3085-D	Woburn Horn Pond	Flood Control	39,400	450,000	75% Construc FY 87
3090-D	New Bedford Pope's Island	Proposed Marina	30,000	N/A	Complete
3093-D	Manchester	Proposed Harbor	44,600	355,000	80% Construction FY 87
104-PA Public Access	Barnstable Harbor	Launching Ramp	18,700	N/A	80% to start July 1985
3094-D	Attleboro Lee's Pond	Flood Control	17,000	73,000	90% Construction FY 87
3092-D 3096-D	Hinsdale Lake Ashmere	Dam Repair	36,200	50,000	Complete
3097-D	Boston-Harbor Park	Design with City of Boston	200,000	N/A	20%
3099-D	Spencer Lake Whittemore	Dam Repair	24,000	115,000	80% Construction FY 87

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1986
3100	Clarksburg Hoosic River	Flood Control Sediment Removal	13,000	37,000	100%-Construction FY 87
3103-D	Hopedale Spindleville Pond	Proposed Dredging Study	25,000	N/A	80%
3106-D	Norwood Ellis Pond	Dam Rehab	38,000	400,000	80% Construction FY 87
3116-D	Stockbridge Stockbridge Bowl	Dam Rehab	23,800	N/A	90%
3124-D	Milford Godfrey Brook	Flood Control	25,000	N/A	50%
3128-D	Winchester Aberjona River	Flood Control and Erosion	33,800	250,000	70%
3130-D	Oak Bluffs	Seawall Repair	25,155	475,000	70% Construction FY 87
3132-D	Grafton Lake Ripple	Dam Repair	10,000	N/A	10%
3134-D	Chelsea Mill Creek	Flood Control	25,900	N/A	60%
3140-D	Mattapoisett Mattapoisett Dam	Dam Rehab	39,000	N/A	35%
3142-D	Saugus Bennett/ Crystal Brooks	Stream Improvements	41,500	N/A	60%
3144-D	Quincy Boston Harbor Ferry Slip	Dredging	38,500	N/A	40%
3146-D	Rochester Snipatuit Rd. Culvert	Replace Culvert	12,000	40,000	25%
3148-D	Revere Sales Creek	Env. Mitigation Report	40,500	N/A	30%
3149-S	Southeastern Multi- Sports Complex	Feasibility Study	25,000	N/A	Processing Contract

DESIGN PROJECTS (con't)

CONTRACT NUMBER	LOCATION	DESCRIPTION OF PROJECT	DESIGN COST	ESTIMATED CONTRACTORS COST	STATUS AS OF JUNE 30, 1986
3150-S	Statewide DEM Ponds	Diagnostic evaluation of 21 Ponds	137,000	N/A	5%
3151-D	Chilmark Menemsha Basin	Bulkhead Replacement	38,000	$700,000	5%
3153-D	Bourne Bourne Marina	Improvements to Marina	14,700	380,000	10%
3156-S	Gloucester State Pier	Fish Process Study	18,000	N/A	30%
3157-D	Oxford McKinstry Pond	Dredging	27,700	225,000	60% Construction FY 87
3159-D	Grafton Irish Dam	Dam Repair	21,100	70,000	10% Construction FY 87
3162-D	Provincetown Hatch's Harbor	Dike Repair	27,700	N/A	Completed
3164-D	Scituate and Cohasset	Harbors' Dredging	81,800	250,000	10% Construction FY 87
3166-D	Bourne/ Harwich Red Brook and Allens Harbor	Dredging	89,800	$300,000	10% Construction FY 87
3168-D	Egartown/ Oak Bluffs	Dredging Sengekontacket	$61,300	200,000	20% Construction FY 87
3171-D	North Adams Natural Bridge State Park	Dredging	$18,700	N/A	Contract bein processed
3176-E	Gloucester State Pier	EIR for Pier Improvements	$30,000	N/A	10%
105 PA	Berkkley Dighton Rock State Park	Dredging and Access Study	$10,000	N/A	40%

Total Values of Work = $3,097,455 $15,112,700

Total No. of Projects 76

PROJECTS ADVERTISED

JULY 1, 1985 to JUNE 30, 1986

DATE	CONTRACT NUMBER	MUNICIPALITY	DESCRIPTION	BID PRICE
7/23/85	3101	East Bridgewater	Matfield River Debris and Stream Clearance	134,300.00
7/23/85	3109	Bourne	Mass Maritime Academy Dredging	215,224.00
8/27/85	3114	Hindsdale	Lake Ashmere Dam Repairs	62,244.00
8/20/85	3059	Quincy	Quincy Bay Dredging	285,020.00
10/1/85	3077	Hingham	Hingham Harbor Dredging	708,150.
11/15/85	3127	Salem	Municipal D.P.W. Yard Removal of stored material from Pickman Park	31,320.00
11/12/85	3088	Sandwich	East Boat Basin Marina Expansion	707,250.00
12/3/85	3139	Fall River	State Pier Fender System Replacement	256,299.00
1/7/86	3138	Hingham	Hewitts Cove Commuter Pier Rehabilitation	708,150.00
2/11/86	3052	Hudson	Washington Street Dam Rehabilitation	196,720.00 **
2/18/86	3155	Gt. Barrington	Housatonic River Erosion Control	216,194.00 *
5/13/86	3098	Upton	Lake Wildwood Dam Repair	$48,646.00 **
5/20/86	3108	Milton	Pine Tree Brook	$68,000.00 **
6/3/86	3111	Framingham	Fenwick Street Dam Rehabilitation	$392,010.00 *

Total Value of Projects Advertised $3,392,997.00

Total Projects = 14

*Award of Contracts pending receipt of additional funding.

** Bids rejected to be re-advertised in FY 1987

PROJECTS COMPLETED AS OF JUNE 30, 1985

CONTRACT NUMBER	MUNICIPALITY	DESCRIPTION	TOTAL COST
3006	Salem	Beach Restoration of Pickman Park	64,762.00
3043	Hull	Flood Control Structures Repair at Straits Pome	23,911.
3049	Northampton	Restoration of Leeds Meadow Dam	633,770.00
3059	Quincy	Dredging of Channel and Basin in Quincy Bay	285,000.00
3084	Hull	Repair to Failed Bulkhead at Nantasket Pier	36,142.
3086	Wellfleet	Repair of Bulkhead at Town Pier	162,817.00
3101	East Bridgewater	Cleaning of Matfield River	240,538.
3109	Bourne	Dredging at the Mass Maritime Academy	235,100.
3114	Hinsdale	Repairs to the Lake Ashmere Dam	58,744.
3127	Salem	Removal of Stockpiled material at City DPW Facility	31,320.
3173	New Bedford	Emergency Repairs to Existing Shed at State Pier	16,200.

Total Value of Completed Projects = $1,788,304.00

Total Projects = 11

PROJECTS UNDER CONSTRUCTION AS OF JUNE 30, 1986

CONTRACT NUMBER	MUNIDIPALITY	DESCRIPTION	PERCENT COMPLETE	TOTAL COST
3048	Falmouth	Relocation of Inlet to Bournes Pond	95%	$928,847.70
3077	Hingham	Dredging of Anchorage in Hingham Harbor	95%	$777,668.00
3088	Sandwich	Expansion of the East Boat Basin	67%	$818,148.00
3138	Hingham	Rehabilitation of Cummuter Pier at Hewitts Cove	75%	$613,285.00
3139	Fall River	Replacing Fender System of State Pier	51%	$274,677.79
TOTAL VALUE OF WORK UNDER CONSTRUCTION				$3,410,626.49

TOTAL PROJECTS = 5

STATUS OF RIVER AND HARBORS PROJECTS

AS OF JUNE 30, 1986

Municipality	Description	Est. Total Project Cost	State Share	Municipal Share
Under Design (Division Contracts)				
Bourne (3166 D)	Dredging Channel to Red Brook Harbor	$132,500.00	$100,000.00	$32,500.00
Edgartown/ Oak Bluffs (3168D)	Dredging Channel in Sengekontacket Pond	$260,000.00	$200,000.00	$60,000.00
Harwich (3166D)	Dredging Channel to Allen Harbor	$200,000.00	$150,000.00	$50,000.00
Scituate (3164D)	Dredging Anchorage in Scituate Harbor	$160,000.00	$120,000.00	$40,000.00
Under Construction (Division Contract)				
Hingham	Dredging Hingham Harbor	$400,000.00	$300,000.00	$100,000.00
Under Design (Municipal Contract)				
Dennis	Stabilization of Swam Pond Inlet	$74,000.00	$50,000.00	$24,000.00
Holbrook	Water Quality Study of Beaver Brook	$37,000.00	$20,000.00	$17,000.00
Mashpee	Dredging In Popponesset Bay	$200,000.00	$150,000.00	$50,000.00
Wareham	Design of Onset Pier Reconstruction	$75,000.00	$ 50,000.00	$25,000.00
Danvers	Improvements to Docking Facilities at Town Pier Crane River	$38,000.00	$ 20,000.00	$18,000.00
Williamstown	Slope Stabilization of Green River	$90,500.00	$50,000.00	$40,500.00
Under Construction (Municipal Contract)				
New Bedford -	Extension of Steam ship Pier	$1,500,000.00	$180,000.00	$1,320,000.00

STATUS OF RIVFRS AND HARBORS PROJECTS (Cont)

icipality	Description	Est. Total Project Cost	State Share	Municipal Share
Under Construction (Municipal Contract)				
Yarmouth	Dredging Channel in Bass River	$174,000.00	$120,000.00	$54,000.00
Billerica	Improving Facilities at Nutting Lake	$1,050,000.00	$ 50,000.00	$1,000,000.00
Agreements Executed and Awaiting Town Implementation				
Bernardston	Dredging in Fall River	$108,000.00	$50,000.00	$ 58,000.00
Northampton	Slope Stabilization of Connecticuit River	$350,000.00	$50,000.00	$300,000.00
Springfield	Restoration of the Porter Lake System Olmstead Park	$550,000.00	$275,000.00	$275,000.00
Berkshire County	Clearing and Cleaning the Housatonic and Hoosic River Basins	$100,000.00	$100,000.00	Provide Labor and Equipment
West Springfield	Stream Improvements to School House Brook	$160,000.00	$100,000.00	$60,000.00
Boston	Planning and Design of Harbor Park, Inner Harbor	$400,000.00	$200,000.00	$200,000.00
Agreements Being Negotiated				
Framingham	Reconstuction of Mill St. Culvert	$67,500.00	$ 35,000.00	$ 32,500.00
East Hadley Easthampton Holyoke Northampton South Hadley	Installation of Channel Markers on Connecticut River	$20,000.00	$ 10,000.00	$ 10,000.00
Montague	Design Public Access Facility at Turners Falls	$100,000.00	$ 50,000.00	$50,000.00
vincetown	Dredging in Vicinity of Mac Milliam Wharf	$1,200,000.00	$100,000.00	$1,100,000.00

STATUS OF RIVERS AND HARBORS PROJECTS (Cont)

Agreements Being Negotiated

Municipality	Description	Est. Total Project Cost	State Share	Municipal Share
Saugus	Dredging of Saugus River, Cost Sharing With Town, Corps of Engineers and Commonwealth	$300,000.00	$100,000.00	$200,000.00
Dennis	Dredging Adjacent to Town River @ Sesuit Harbor	$48,600.00	$22,000.00	$26,600.00
	Total Amounts	$7,795,100.00	$2,652,000.00	$5,143,100.00

Total Projects = 26

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ACME
BOOKBINDING CO., INC.

JUL 28 1990

100 CAMBRIDGE STREET
CHARLESTOWN, MASS.